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REPORT OF
BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS
IN THE NORTHEASTERN STATES
CAYENNE YEAR 1937

ALSO
PERIOD 1916-1937, INCLUSIVE

BLISTER RUST CONTROL WORK
in the
EASTERN STATES

1937

A. C. Miller - Senior Pathologist
E. H. Stinson - Associate Plant Pathological Inspector

Division of Plant Disease Control
Bureau of Entomology and Plant Quarantine
U. S. Department of Agriculture

Washington, D. C., Pennsylvania and New Jersey

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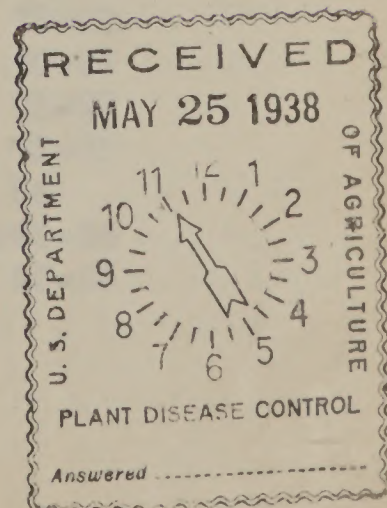
REPORT OF
COOPERATIVE BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS
IN THE NORTHEASTERN STATES*
CALENDAR YEAR 1937
ALSO
PERIOD 1918-1937, INCLUSIVE

By

E. C. Filler - Senior Pathologist
K. K. Stimson - Associate Plant Pathological Inspector

Division of Plant Disease Control
Bureau of Entomology and Plant Quarantine
U. S. Department of Agriculture

*(New England, New York, Pennsylvania and New Jersey.)



INDEX

GENERAL STATEMENT.....	Pages 1-9
White Pine Conditions.....	" 1, 2 and 7
Ribes ".....	" 2 and 8
Infection ".....	" 2, 3 and 9
Summary of Accomplishments.....	" 3-6

BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS BY PROGRAMS " 10-101

REGULAR COOPERATIVE PROGRAM.....	" 10-35
Policy.....	Page 10
Personnel.....	" 11
Informational and Service.....	Pages 12-15
Cooperation.....	" 16-19
Ribes Eradication.....	" 20-27
Nursery Sanitation.....	" 28-30
Ribes Nigrum Elimination.....	Page 31
Blister Rust Canker Elimination.....	Pages 32-33
Pine and Control Area Mapping.....	Page 33
Total Expenditures.....	Pages 34-35

C.C.C. PROGRAM.....	Pages 36-52
Policy and Procedure.....	" 36-37
Personnel.....	" 37-39
Basis of Costs.....	Page 39
Ribes Eradication.....	Pages 39-48
Nursery Sanitation.....	" 48-49
Blister Rust Canker Elimination.....	Page 49
Pine and Control Area Mapping.....	" 50
Total Expenditures.....	Pages 51-52

W.P.A. PROGRAM.....	Pages 53-93
Allotments and Purposes.....	Page 53
Economic and Social Value.....	Pages 53-55
Responsibilities and Field Supervision.....	" 55-56
Qualifications and Source of Labor.....	" 56-57
Personnel and Employment.....	" 57-62
Hours of Work and Wage Scales.....	" 63-65
Transportation.....	" 65-66
Injuries and Compensation.....	" 66-68
Activities of Regional Office.....	" 68-71
Ribes Eradication.....	" 71-79
Pine and Control Area Mapping.....	" 79-80
Nursery Sanitation.....	" 80-81
Ribes Nigrum Elimination.....	" 81-82
Blister Rust Canker Elimination.....	" 82-83
Special Field Studies.....	Page 83
State and Local Cooperation.....	Pages 83-84
Allotments and Expenditures by States.....	" 85-93

A.R.A. PROGRAM.....	Pages	94-95
General Statement.....	Page	94
Ribes Eradication.....	Pages	94-95
STATE AND LOCAL W.P.A. PROGRAMS.....	Pages	96-98
General Statement.....	Page	96
Ribes Eradication.....	"	96
Nursery Sanitation.....	"	97
Pine and Control Area Mapping.....	"	97
Pine Infection Survey.....	"	97
Total Expenditures.....	"	98
S.C.S. PROGRAM.....	Pages	99-101
General Statement.....	Page	99
Ribes Eradication.....	Pages	99-100
Nursery Sanitation.....	Page	100
Total Expenditures.....	"	101
ALL PROGRAMS (1937).....	Pages	102-118
Personnel Employed.....	Page	103
Ribes Eradication.....	Pages	104-108
Nursery Sanitation.....	Page	109
Ribes Nigrum Elimination.....	"	110
Pine and Control Area Mapping.....	"	111
Blister Rust Canker Elimination.....	"	112
Cultivated Ribes Compensation.....	"	112
Total Expenditures.....	Pages	113-118
ALL PROGRAMS (1918-1937).....	Pages	119-155
Ribes Eradication.....	"	120-127
Status of Ribes Eradication Work.....	"	128-132
Effectiveness of Blister Rust Control.....	"	133-137
Nursery Sanitation.....	"	138-141
Ribes Nigrum Elimination.....	"	142-143
Blister Rust Canker Elimination.....	"	144-145
Pine and Control Area Mapping.....	"	146-148
Cultivated Ribes Compensation.....	Page	149
Total Expenditures.....	Pages	150-151
Acreage and Commercial Value of White Pine.....	Page	152
Relation of Total Costs to Value of White Pine.....	Pages	153-154
Per Acre Costs of Ribes Eradication Work.....	Page	155

- 1 -

COOPERATIVE BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS
IN THE NORTHEASTERN STATES

This report is a detailed summary and analysis of blister rust control activities and accomplishments in the Northeastern States for all years and especially gives the pertinent facts regarding the 1937 work. The information is segregated by programs, each being complete in itself and divided into the various projects - Ribes eradication, nursery sanitation, Ribes nigrum elimination, pine and control area mapping, canker elimination and field studies. In addition, the results for all programs are summarized and the status of each project indicated. The report is based on the yearly statistical records submitted by the state leaders and general observations made by the Regional Leader. No attempt has been made to discuss future plans, since they will be presented in separate statements as needed.

White Pine Conditions

Based on the cartographical survey of 1925, the white pine crop in the Northeastern States comprises 7,667,127 acres and has a normal commercial value of \$315,726,491 (Table 111). This acreage is classified as follows: Pure pine (80 percent or over), 2,808,179 acres; mixed pine (21-79 percent pine in mixture), 2,921,434 acres; and pine stocking and restocking in other types, 1,937,514 acres. Of this total acreage, 71.3 percent is located in the states of Maine, New Hampshire and New York. White pine is the most important tree in the extensive territory where it occurs in pure stands, or where it constitutes a high percentage of the trees in mixed types (See Page 7). In such situations it covers a larger area, is used for more purposes and brings a greater return than any other species. For several years, the lumber cut of white pine in Maine and New Hampshire has been about 65 percent of the entire lumber cut in those two states. In many sections, white pine is being produced on a sustained yield basis, notably in Plymouth and northern Worcester Counties in Massachusetts and in southern Cheshire County, New Hampshire. These conditions exist today in spite of about 300 years of logging. The management of white pine as a permanent crop both on farm woodlots and on wild lands is essential to maintain the prosperity of the region.

The rate of growth of white pine on good sites out-ranks all other hard or soft-woods. In many instances, white pine constitutes a bank reserve for rural residents, especially farmers. Without any expenditure for cultivation, this tree has been the means of reducing or eliminating mortgages, educating children and often providing for old age independence. A high percentage of the wood-using industries in the Northeastern States use white pine in the manufacture of hundreds of commodities including boxes, toys, matches, pails and screen doors. It is also used for interior and exterior finish of homes. The use of knotty pine for interiors and pine slabbing for cabins is becoming more prevalent. The logging and manufacture of white pine provides employment for tens of thousands of persons. In spite of competition by substitute containers, the manufacture of wooden boxes continues at a fairly good volume, since many commodities require a more safe type of container than are offered by the wood substitutes.

The scenic, recreational and watershed protection value of white pine in the Northeastern States probably equals or exceeds its commercial worth. The region is becoming increasingly popular as a summer and winter playground, and its attractiveness in this respect is due in no small degree to the white pines which are green throughout the year. In the lake and lower mountain sections white pine add greatly to attractiveness and popularity of the resort centers. The beauty of many scenic places is frequently due to the fascinating pine growth in some unusual situation.

White pine has been extensively planted for ornamental and reforestation purposes throughout the Northeastern States. During the period 1931 to 1937, inclusive, the state nurseries in this region distributed 70,647,453 white pines, 71% of these trees originating in the New York state nurseries. In Rhode Island, where there was no state nursery, during this period, 1,048,730 pines were purchased from out-of-state nurseries. Also, in Connecticut many plantings were made from stock obtained from private nurseries.

Ribes Conditions

Wild Ribes occur more or less generally distributed throughout the white pine region of the Northeastern States, but vary locally as to site, species, size, and abundance. Nine indigenous species have been encountered in control work, four being gooseberries and five currants, exclusive of Ribes vulgare which is considered an escaped cultivated red currant. The number of Ribes varies from 100 or more per acre in some sites to few or none in others. The aggregate, however, represents many millions of such bushes, as evidenced by the eradication of 233,880,357 wild Ribes in the Northeastern States during the period 1918 to 1937, inclusive. It has been determined by Fivaz and others that shade is an important factor in eliminating and suppressing Ribes, that Ribes' seed remain dormant and viable in the duff for years, and that disturbance of the duff by logging, fire, animals, or mechanical means favors the germination of such dormant seeds. Therefore, Ribes are usually found most abundant in open situations, such as recently cut-over or burned areas, pastures, swamps, fence rows, etc. The amount and distribution of wild Ribes per acre, based on town units, is designated on page 8. The cultivated Ribes problem is indicated by the 951,283 cultivated bushes that have been destroyed in applying control measures since 1918.

Pine Infection Conditions

Blister rust infection is general throughout the white pine range in New England and New York. Over extensive areas, from 1 to 20 percent or more of the pines are infected; and in many local pine tracts, from 50 to 100 percent of the trees are dead or dying. The amount of disease varies considerably in different localities and is directly influenced by such factors as the number of original infection centers caused by the planting of imported diseased pine, the distribution and amount of native pine, association of pine and Ribes, abundance of Ribes, climatic conditions, and the application of control measures. In Essex and Warren Counties, New York, and in the upper Connecticut River Valley region, where Ribes are generally abundant, pine infection is also heaviest; 11 to 20 percent or more of the trees being diseased. In southern New England and in most of southern New York, less than one percent of the pines are infected, except in a few limited areas.

Blister rust has existed in Pennsylvania and New Jersey for several years, but was not reported on native pines in the former state until 1927, and in the latter during 1934. The relatively slow spread of the disease prior to that time may be attributed chiefly to the fewer plantations of imported diseased stock and to the localization of native pine areas. Studies, made in unprotected areas in Pennsylvania during December 1934 and January-February 1935, show that the amount of disease is increasing at an alarming rate. Ten plots, comprising $9\frac{1}{4}$ acres, were laid out in the counties of Clarion and Potter. These plots contained 3,984 white pines, of which 2,618, or 66 percent, were infected with 10,605 cankers. The intensification of the disease is indicated by the fact that 62 percent of the cankers were of 1930 or 1931 origin. Fifty percent of the infected trees have trunk cankers and over 14 percent of the diseased pines have already been killed.

The scouting work in New Jersey during 1934 revealed 17 scattered infections on native pines in the township of Montague in the northwestern part of the state. A pre-eradication survey in the township of West Milford in Passaic County also showed several spot pine infections, the heaviest being on a property where *Ribes nigrum* had existed up to a few years ago.

During 1934, plot studies were made to determine the amount of blister rust infection on white pine in unprotected areas. A total of 35 plots, comprising 31.2 acres, were established in the States of New Hampshire, New York, Vermont, Maine, Massachusetts and Pennsylvania. These plots contained 17,569 white pine, 49.9 percent of which were infected with 22,228 cankers. Over 37 percent of these infections originated during the years 1930 and 1931, which shows the danger of delaying protection work.

An additional study was made in a 9-3/4 acre plot in an unprotected area in the township of Minot, Maine. Over 49 percent of the 5,262 pines were found to be infected. In this study only the age of the oldest canker on each infected tree was recorded, consequently there is no information available on the total number of cankers.

Similar plot studies were also made during the fall of 1937, W.P.A. laborers being used to assist the district blister rust control leaders in obtaining the pine infection data. In the unprotected tracts, studies were made in 71 plots, totalling 68 1/2 acres, in 51 townships in Maine, New Hampshire, Vermont and New York. A total of 52,635 white pines were examined and 12,691, or 23.7%, of the trees were found infected with 21,288 blister rust cankers. Nearly 57% of these cankers had originated during the past seven years.

The distribution and amount of white pine blister rust infection, based on township units, in New England and New York is shown on Page 9. A direct correlation between pine infection and abundance of *Ribes* is apparent when this map is compared with the *Ribes* map on Page 8.

General Summary of Blister Rust Control Accomplishments in the Northeastern States During the Period 1918 to 1937, Inclusive.

Ribes Eradication

The total control area in the Northeastern States comprises 15,246,516 acres. Initial protection has been established on 76.1%, or 11,598,428 acres, by the eradication of 197,722,785 wild *Ribes* and 735,965 cultivated bushes. There still remains 3,648,088 acres in need of initial control work, requiring 950,996 man days of labor. Most of the unworked areas are located in New York, Maine, Vermont, New Hampshire and Pennsylvania - (Table 96 - also map on page 130). Since 1922 a total of 3,018,485 acres has been re-examined for *Ribes*. This reworking resulted in the destruction of an additional 36,157,572 wild *Ribes* and 68,772 cultivated bushes on 26.0% of the total area initially protected. At the present time 4,481,545 acres require re-examination. It is estimated such work will necessitate 788,594 man days of labor - (Table 96 - also map on page 132). The acreage protected initially or re-examined under the various Emergency programs since 1933 represents 29.4 percent of the total area worked in this region during the period 1918 to 1937, inclusive.

The *Ribes* eradication work conducted under the Emergency programs since 1933 resulted in increasing the area protected by 4,302,520 acres, or 66.5%, more than what would have been accomplished if only regular money had been available. This conclusion is based on the following analysis. During 1932, the last year prior to

the advent of the Emergency programs and the decrease in the regular appropriation, \$94,604.62 regular money was expended for salaries and expenses of the state and district leaders in this region, and a total of 544,620 acres were cleared of Ribes. Since 1932, regular funds for cooperation with the states in this region have averaged only \$36,340.50 per year. During 1932-1937, if Emergency money had not been available, the regular allotment for cooperation with the states would probably not have exceeded \$50,000 per year. This would have necessitated a reduction in the district leader personnel and a corresponding decrease in the amount of control work performed, since under the regular program the acreage protected depends chiefly upon the success of the district leaders in securing local cooperation. Assuming that the decrease in the acreage protected would be comparable to the 47.1% decrease in regular funds from \$94,604.62 to \$50,000 per year, an average of only 288,103 acres per year would have been protected during the period, 1933-1937, inclusive. Actually, an average of 860,504 acres per year was cleared of Ribes in this region during the past five years. The Emergency programs have made possible the systematic working of large areas, rather than individual units. They have also permitted the application of control measures on lands where such work was urgent, rather than basing the selection on local cooperation. It has been possible to work many remote areas, also tracts containing an abundance of Ribes, where the cost of control had prevented prior application of protection measures. This control work has served to eliminate many sources of infection that otherwise would have persisted. Thousands of men have received training in Ribes eradication work, and many of these persons will be available for similar work in the future. The training should also enable many of these men to maintain control of blister rust on their own properties. The Emergency programs have not only resulted in the protection of hundreds of thousands of acres of valuable pine; but of even greater importance, they have helped to rehabilitate thousands of men who were on the verge of despair prior to the inauguration of such work.

Ribes Nigrum Elimination

Black currant elimination has been conducted as a special project in four states - New York, Rhode Island, Connecticut and Massachusetts; a total of 102,170 Ribes nigrum and 44,663 other cultivated bushes being destroyed (Table 102). In Rhode Island and Connecticut, the work has been completed; and in Massachusetts, it has been finished on the mainland. Out of a total of 1,012 townships in New York, the project has been completed in 225 and partially finished in 50 others - (Table 103). In conjunction with the regular control activities in the other Northeastern States, such bushes have been eradicated in the worked portions of the control areas. Few Ribes nigrum have been found in these latter states. In Rhode Island and New York practically all of the work was performed under the Regular program; but in Massachusetts and Connecticut, 18.4% and 89.5%, respectively, of the total man days on this project in each of these states represented labor provided by Emergency programs.

Nursery Sanitation

At the close of the 1937 Ribes eradication season, 51 nurseries had established and were maintaining Ribes-free sanitation zones; 30 of these nurseries being privately owned, 18 belonging to the respective states, and 3 operated by the Soil Conservation Service - (Table 100). Twenty-four other nurseries had established sanitation zones, but abandoned them prior to 1937. In the 54 nurseries worked during 1937, there existed at that time a total of 28,260,292 white pines.

Pine and Control Area Mapping

Pine and control area mapping has been performed in all the Northeastern States except New Jersey. Such activities were very limited prior to the advent of the Emergency programs for the reasons indicated under heading "Pine and Control Area Mapping" on page 33. Under the various control programs during 1933 to 1937, inclusive, 7,136,155 acres were mapped and 8,599,523 additional acres examined but not mapped due to lack of sufficient pine to justify the cost of control - (Table 106). A total of 9,954½ miles of control area boundary lines were also painted in the field. Nearly 97% of the acreage mapped in the Northeastern States during the period 1933-1937, inclusive, resulted from work performed under the various Emergency programs. Very little of this pre-eradication survey work could have been conducted if Emergency funds and labor had not been available. The pine and control area maps are not only of assistance to the crew foremen on Ribes eradication work, but will be helpful in planning and executing future re-examinations of control areas. The detailed mapping has been completed in 787 townships and partly finished in 623 others. Spot mapping has also been completed in 325 additional townships and partly done in 332 other townships. There still remains 1,413 townships where no mapping has been done. However, it is questionable whether 573 of these in Pennsylvania should be mapped due to the scattered distribution of pine and the small acreage of the units. It is estimated the mapping needed in the other 840 townships will require 128,508 man days of labor.

Canker Elimination

Canker elimination work was performed during the period 1932 to 1937 principally on publicly-owned areas in five states - Maine, Vermont, Massachusetts, New York and Pennsylvania - (Table 104). The project in Maine was conducted chiefly at Acadia National Park, where the cankers were removed from infected scenic pines. Technical supervision was, however, given to a few small private jobs in Maine where the owners paid the entire cost of the labor. The projects in the four other states were in connection with the elimination of cankers from diseased pines in publicly-owned plantations generally where the percentage of diseased trees exceeded 10%. The canker elimination projects resulted in the examination of 6,661,411 white pines, 231,661 of which were cut down due to fatal stem cankers. An additional 261,060 pines were treated for infection by removing 729,259 branch cankers and 5,147 stem lesions. These accomplishments are due almost entirely to work performed under the Emergency programs since only 2 percent of the total man-days on this project are chargeable to the Regular program.

Field Studies

Many field studies have been made to determine the distribution and amount of infection on white pines, blister rust damage to such trees, spread of the disease from definite sources of Ribes, efficiency of Ribes eradication, improvements in control methods, and effectiveness of control. As a result of these studies, the following facts have been ascertained. Commercial protection of local white pine areas from blister rust by the eradication of Ribes within 900 feet is practical and effective. The width of the protection zone can be varied from 600 to 900 feet depending upon topography, species and abundance of Ribes, and density and height of the forest growth surrounding the pine area. Ribes nigrum are instrumental in the long distance spread and local establishment of the rust and should not be grown in pine regions. Blister rust is an insidious disease, the amount of infection and damage frequently being so inapparent to the layman as to cause a false sense of security. Blister rust on white pines is generally distributed throughout the region, the amount of infection depending upon the abundance, species and distribution of Ribes. Generally

speaking, little new infection exists in protected areas, except those where the re-eradication work has been delayed too long. On the other hand, new infections are occurring in unprotected areas, being especially abundant in sections where Ribes are numerous, as in Pennsylvania. The disease kills white pines of all ages, and damage to merchantable-size trees is becoming increasingly conspicuous in northern New England and northeastern New York. Removal of branch and stem cankers from ornamental white pines is practicable, provided the trunks are not more than $2/3$ girdled by the fungus. Such action is not, however, advisable in wooded areas, except in connection with regular pruning operations in young stands or plantations and then it should be limited to removal of infected branches from trees which do not have stem cankers.

Relation of Cost of Control to Value of Pine

The cartographical survey of 1925 showed that there were 7,667,127 acres of white pine growth in the Northeastern States with a commercial value estimated at \$315,726,491. The cost of all control activities for all phases of the work by all cooperating agencies during the period 1918 to 1937, inclusive, amounted to \$10,094,586.83. State expenditures represent 21.3 percent of the total, those of local cooperators 10.2 percent, and the federal government 18.9 percent from regular funds and 49.6 percent from Emergency allotments. The total expenditure, however, represents only 3.2 percent of the commercial pine value. In the Northeastern States, the recreational, scenic and watershed protection value of the pine probably equals or exceeds the commercial value. Indirectly the educational and service work of the field personnel has been of great assistance in stimulating a general public interest in forestry, especially in the field of protection.

DISTRIBUTION AND ABUNDANCE OF WHITE PINE

NEW ENGLAND AND NEW YORK.

(Based on cartographical survey of 1925)

Legend

1-15 Percent of land area in pure
or mixed white pine

16-30 Percent of land area in pure
or mixed white pine

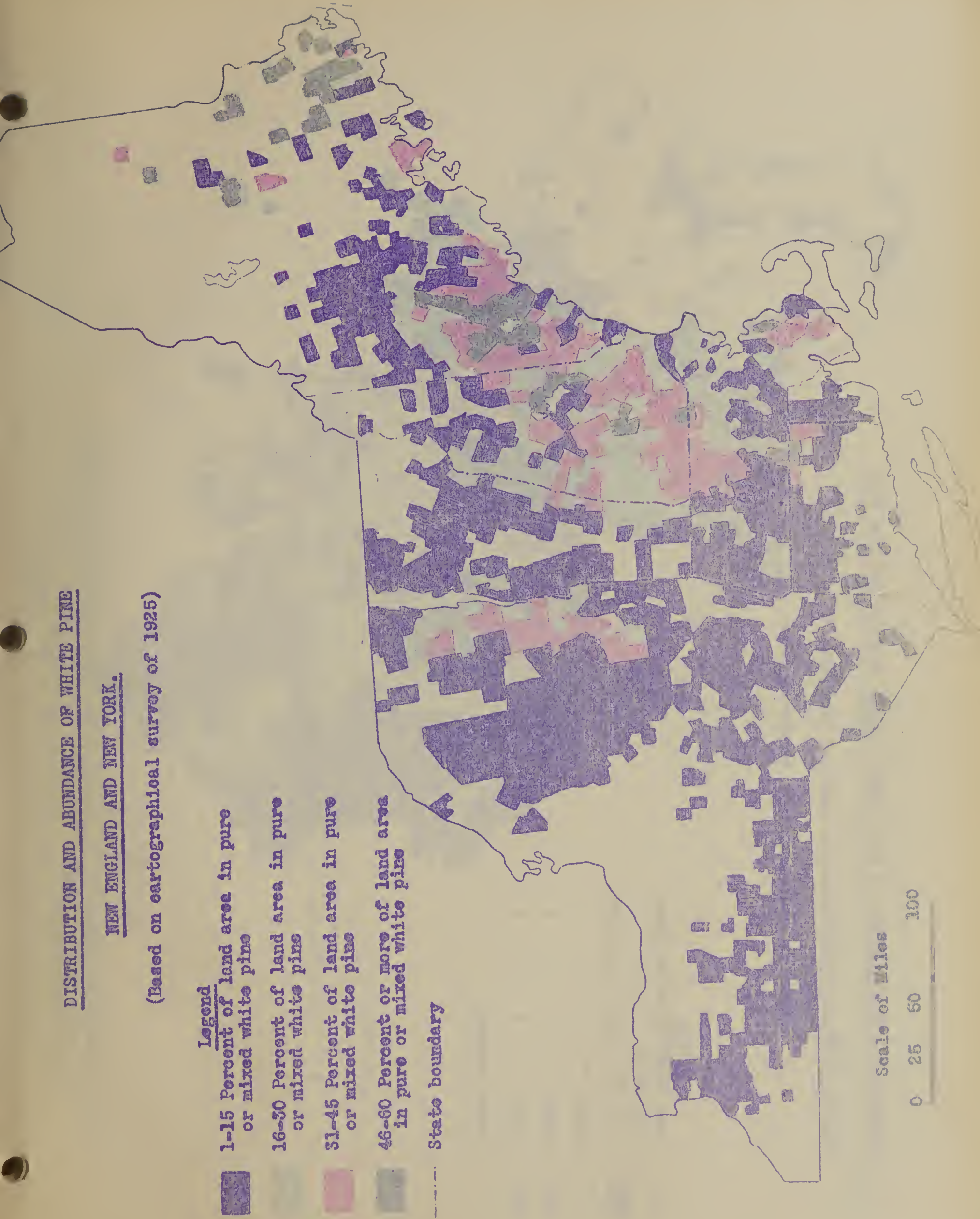
31-45 Percent of land area in pure
or mixed white pine

46-60 Percent or more of land area
in pure or mixed white pine

State boundary

Scale of Miles



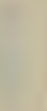



0 25 50 100

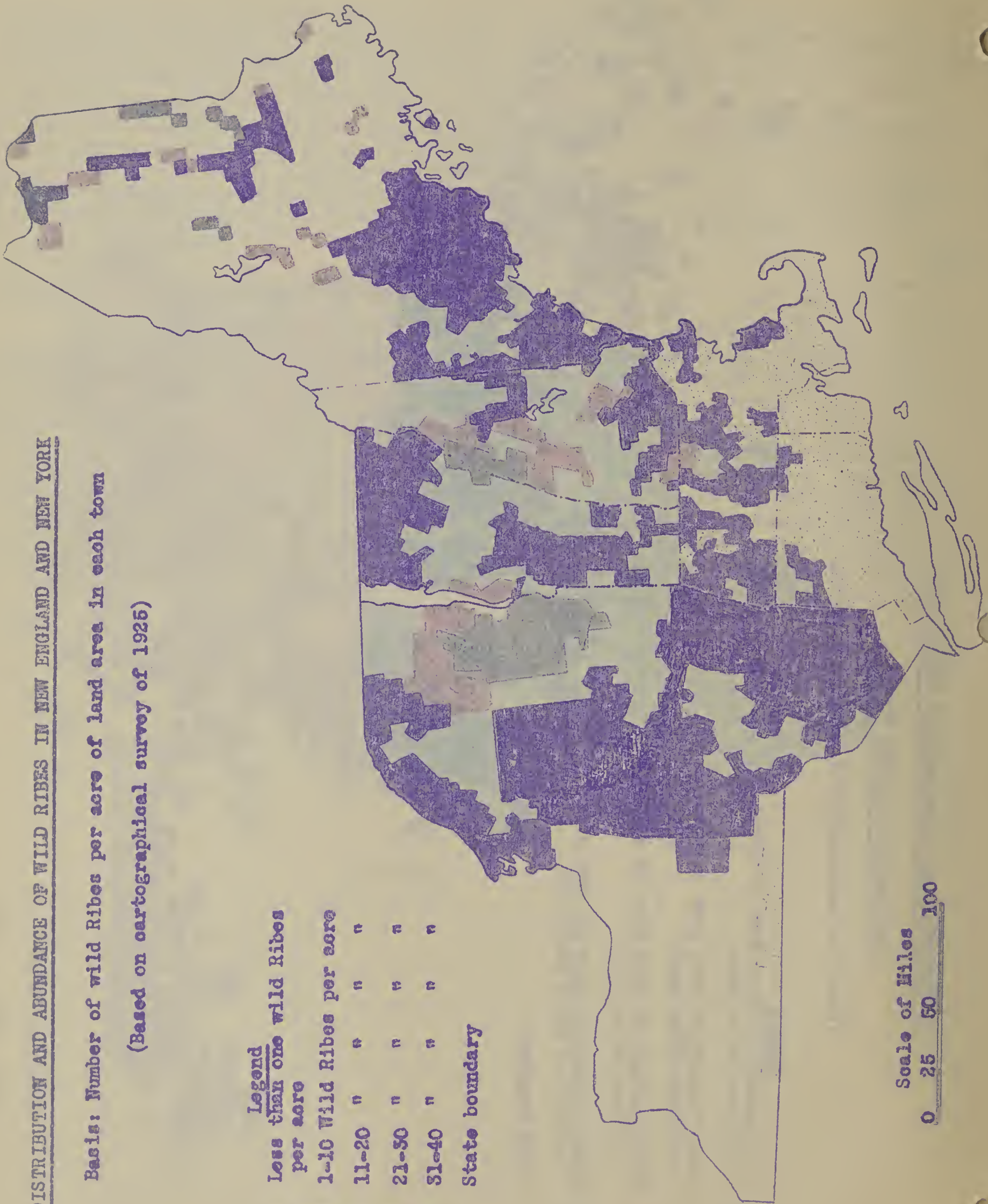


DISTRIBUTION AND ABUNDANCE OF WILD RIBES IN NEW ENGLAND AND NEW YORK

Basis: Number of wild Ribes per acre of land area in each town

(Based on cartographical survey of 1925)

Legend	
	Less than one wild Ribes per acre
	1-10 Wild Ribes per acre
	11-20 " " "
	21-30 " " "
	31-40 " " "
	State boundary



Scale of Miles
0 25 50 100

DISTRIBUTION AND ABUNDANCE OF BLISTER RUST INFECTION ON WHITE PINES

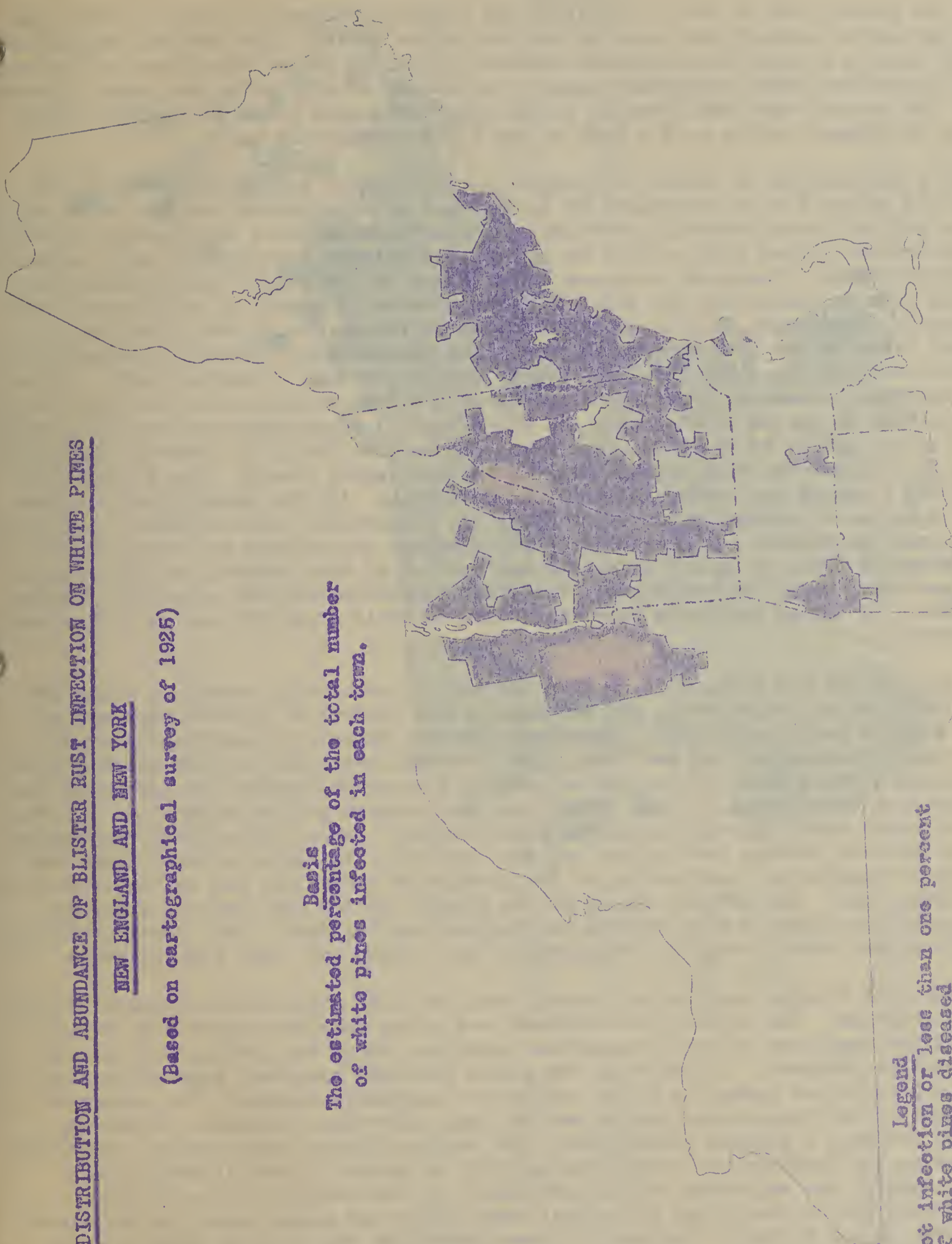
NEW ENGLAND AND NEW YORK

(Based on cartographical survey of 1925)

Basis
The estimated percentage of the total number
of white pines infected in each town.

- Legend
- Spot infection or less than one percent
of white pines diseased
 - 1-10 Percent of white pines infected
 - 11-20 Percent or over of white pines infected
 - State boundary

Scale of Miles
0 25 50 100



BLISTER RUST CONTROL ACTIVITIES UNDER REGULAR COOPERATIVE
CONTROL PROGRAM IN NORTHEASTERN STATES.

Policy

During the period 1918 to 1921, inclusive, the Federal Government cooperated with the states in experimental control work on a dollar for dollar basis. This work was conducted in each state under a cooperative agreement between the United States Department of Agriculture and the authorized state regulatory agency, the latter usually being the state forestry department. The control work was directed by the state officials under the general supervision of the Government, which paid a part of the Ribes eradication costs.

In 1922, a new program to secure the general application of control measures was inaugurated by the United States Department of Agriculture in cooperation with the state regulatory agencies and the state extension services. This program has been in operation since that time, but was altered during 1933 to 1937 to include the blister rust control work performed under the various Federal Emergency programs. The object of the regular cooperative work since 1922 has been to accomplish the control of the disease by providing pine owners with the expert advice, leadership, and supervision needed to secure prompt and effective local eradication of Ribes in the pine-growing regions. The Government is primarily responsible for furnishing each cooperating state with one or more trained leaders in control work. In addition, the Government conducts experiments and demonstrations to improve control practices, obtains information on spread of the rust, and gives general supervision and regional leadership. Prior to the advent of the Government Emergency work in 1933, all Federal cooperative expenditures were offset by state expenditures of at least equal amount. The cooperating state regulatory agencies are responsible for the following: (1) the administrative direction of the employees furnished by the Government; (2) cooperation with counties, townships, associations, and individuals in control work; (3) adequate supervision and checking of local eradication of Ribes to secure effective destruction of such bushes; and (4) enforcement of any necessary regulatory measures. The state extension services cooperate, wherever practicable, by making available such facilities of their organizations as will promote the control program.

In New England and New York, this program has been in successful operation since its adoption in 1922; but in Pennsylvania and New Jersey, the control activities were not organized on a similar basis until 1929. There were several reasons for restricting control activities outside New England and New York. The principal ones were the few introductions of diseased nursery stock from Europe, the relatively slow establishment and spread of the rust, the scattered distribution of the white pine, and passive public interest in forestry and lack of adequate state appropriations for control work. Hence, up to 1929, cooperative activities in the East outside New England and New York were limited to a small amount of scouting, nursery sanitation, eradication of new centers of infection, and to investigational and informational work. The natural spread of the disease during the past few years has greatly increased the infested area outside New England and New York. As a result, definite control programs have been adopted in Pennsylvania, New Jersey and other eastern states.

Since 1933, the regular cooperative control work has been necessarily curtailed due to the Emergency programs. The blister rust leaders have given complete supervision to all control activities conducted in their respective districts under the P.W.A., W.P.A., and regular cooperative programs. In addition, they have provided technical supervision for the control work performed under the C.C.C. and other Emergency programs. The number of district leaders in the cooperating states has not been uniform or constant. Generally speaking there has been a gradual curtailment. The regular blister rust control supervisory force employed in the Northeastern States during 1937, is shown in the following chart. As indicated, some of the employees worked part time. In New Hampshire, four district leaders spent only 3/4 of their time on control work, while the state leader in New Jersey worked half time on our project. The cost of these part-time men while on other special duties were paid from state money other than that allotted for the blister rust program.

DIVISION PLANT DISEASE CONTROL
S. B. Fracker - Chief - Washington D.C.
J. F. Martin - Asst Chief - " "

REGIONAL OFFICE - NORTHEASTERN STATES
E. C. Filler - Regional Leader - Cambridge, Mass.
K. K. Stimson - Adm. Asst. - " "
Regular Control Program W.P.A. Control Program

D. B. Cheyne - Princ. Clerk
P. L. Rusden - Control Spe.
M. G. Calderara - " "

L. W. Hodgkins Control Specialist

Other Emerg. Programs

C. C. C. Program

MAINE
W. O. Frost State Leader

NEW YORK
H. L. McIntyre State Leader

NEW HAMPSHIRE
L. E. Newman State Leader

MASSACHUSETTS
C. C. Perry State Leader

RIEF AST
H. G. Bradbury District Leader

AUBURN
G. H. Kimball District Leader

WARRENSBURG
N. H. Harpp District Leader

SARATOGA SPRINGS
P. E. Barber District Leader

KEENE
F. J. Baker District Leader

CONCORD
T. I. King District Leader

SPRINGFIELD
R. E. Wheeler District Leader

N. B.INGTON
E. M. Brockway District Leader

NORTH BRINGTON
D. S. Curtis District Leader

WATERVILLE
J. M. White District Leader

HYDE PARK
H. G. Strait District Leader

GLOVERSVILLE
J. W. Charlton District Leader

LEBANON
G. F. Richardson District Leader

NORTH CONWAY
S. H. Boomer District Leader

GR. BARRINGTON
G. S. Doore District Leader

WORCESTER
Wm. Clave District Leader

BOONVILLE
P. P. Wooschlagner District Leader

PERU
H. W. Holcomb District Leader

GOVERNOR
C. B. Kresge District Leader

EXETER
Temporary Agent

WOODSVILLE
T. L. Kane District Leader

VERMONT
S. D. Conner State Leader

CONNECTICUT
J. E. Riley State Leader

NEW JERSEY
P. B. Moff State Leader

RHODE ISLAND
A. C. White State Leader (acting)

PENNSYLVANIA
R. P. Fatzinger State Leader

RUTLAND
M. R. Mulholland District Leader

ST. JOHNSBURY
E. H. Palmer District Leader

Temporary Personnel Assigned as Needed

Temporary Personnel Assigned as Needed

TOWANDA
T. C. Williams District Leader

Temporary Personnel Assigned as Needed

CLEARFIELD
P. A. Symmonds District Leader

State Land Protection State Agents

BRIDGEVILLE
M. J. DeBartolo District Leader

Complete Supervision
Technician

Informational and Service Activities

Successful informational and service activities by the district leaders are essential to secure the cooperation of individuals and towns in the application of control measures. The informational features are used to create general and favorable attention, interest and desire; while the service work is required to obtain general, prompt, and effective cooperation.

No satisfactory comparison can be made of the volume of the informational and service work performed in the different states since, as stated previously, the number of district leaders in the cooperating states has varied considerably. Table 4 indicates a general decrease in the use of informational features during the past few years. This is due to fewer agents being employed and to the fact that such activities have purposely not been emphasized as strongly as during the early years of the program. The control work has now reached a stage where the chief objective is to retain public interest in maintaining control and this can be accomplished with a reduced volume of informational features. Since 1933, the district leaders activities in connection with the Emergency programs increased their supervisory duties and resulted in a curtailment of the informational and service work. Such activities were also limited in some of the states because local cooperation was not solicited due to economic conditions and the policy of conducting control work chiefly under the Emergency programs. In several of the states, the district leaders spent most of their time on mapping work during the winter months since 1933. The decrease in the amount of informational and service activities by the district leaders has to a large extent been offset by the intimate knowledge of blister rust control gained by several thousands of workers employed on Emergency programs during recent years.

In addition to the informational and service work performed by the permanent district blister rust control leaders, some activities of this nature were conducted by the state leaders and temporary state assistants. Since these latter employees did not submit monthly summary reports of their own activities to the Cambridge Office, the results of their efforts in this respect are not included in this report.

Summaries of the informational and service work performed by the district blister rust control leaders during 1937 are given in Tables 1 and 2, while the accomplishments for the period 1923 to 1937, inclusive are indicated in Tables 3 and 4.

Table 1. - Informational Activities Performed in Each of The Northeastern States During 1937 by The Permanent District Leaders.

State	Meetings Addressed		Displays Placed	Items Published
	No.	Attendance		
Maine	3	325	2	-
N.H.	39	4,455	40	32
Vt.	23	1,071	7	13
Mass.	7	195	1	4
R.I.	2	65	5	3
N.Y.	15	1,175	4	22
Penna.	-	-	4	-
Totals	89	7,286	63	74

Table 2. Service Activities Performed in Each of The Northeastern States During 1937 by The Permanent District Leaders

State	Initial Interviews	Follow-Up Calls	Personal Instruction
			in Field (No. Individuals)
Maine	371	123	235
N.H.	1,074	1,054	555
Vt.	597	351	384
Mass.	428	246	95
R.I.	58	80	8
N.Y.	694	311	633
Penna.	70	3	24
Totals	3,292	2,168	1,864

Table 3. - Summary, By States, of Informational and Service Activities
Performed By Permanent and Temporary District Blister Rust Control
Leaders in New England and New York, During Period 1923 - 1937, Inclusive.

Informational

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
Meetings Addressed (1)	1,302	2,756	807	917	221	73	1,438	7,517
Attendance (1)	30,741	144,760	24,447	32,440	17,287	2,633	99,268	361,576
Displays Placed (2)	1,017	1,896	598	813	113	141	527	6,103
Publications Distributed (3)	65,652	183,853	30,653	160,907	35,331	12,155	133,570	612,121
Mimeo. Articles " (3)	4,848	64,465	192	2,445	2,250	91	3,595	77,884
Items Published	577	3,702	491	2,064	393	641	2,279	10,147
Posters & Signs Placed (3)	18,802	19,837	7,561	3,116	2,104	539	9,049	61,038

- (1) Includes "Field Demonstration Meetings."
 (2) Includes "Roadside Demonstrations."
 (3) No record kept of this item after April, 1934.

In addition, during the period July 1 to December 31, 1922, the following general informational work was performed: 251 meetings addressed with an attendance of 29,163 persons, 335 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 35,067 publications distributed, 313 items published, and 2,500 posters and signs placed.

Service

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
Initial Interviews	28,829	29,847	11,543	32,172	3,273	4,076	25,235	134,975
Follow-Up Calls	9,769	26,799	7,487	11,907	2,741	3,035	18,952	80,688
Persons Instructed in Field	20,175	18,590	9,136	11,869	693	1,633	17,375	79,371

During the period July 1 to December 31, 1922, an additional 6,227 initial interviews and 1,924 follow-up calls were made, and 1,540 individuals received personal instruction in the field.

Table 4. - Summary of Yearly Informational and Service Activities Performed by Permanent and Temporary Blister Rust Control Leaders in New England and New York During Period 1923-1957, Inclusive

Informational

Year	Meetings Addressed		Field Dem. Meetings		Displays Placed	Publications Dist.	Mimeo. Articles Dist.	Items Pub.	Posters & Signs Placed	Road Dem. Placed
	No.	Attendance	No.	Attendance						
1923	722	32,649	834	5,442	582	51,308	-	1,203	6,499	-
1924	707	47,071	792	4,050	647	55,696	-	1,269	9,553	-
1925	627	45,522	418	2,912	690	68,818	-	1,294	8,894	-
1926	490	33,082	210	5,019	824	73,697	-	1,202	8,055	-
1927	467	34,690	148	2,646	647	88,840	-	1,219	7,041	-
1928	363	21,178	159	2,809	492	62,708	14,953	1,109	7,283	-
1929	204	23,729	70	1,898	358	52,332	23,155	769	4,388	-
1930	144	8,275	44	1,022	215	48,124	20,715	518	3,445	127
1931	95	7,852	30	840	109	38,068	9,165	372	2,922	81
1932	233	18,107	38	571	67	39,532	6,416	340	1,758	52
1933	255	12,047	41	919	50	27,691	3,435	333	1,129	31
1934	95	10,259	(1)11	102	104	4,277(2)	45(2)	182	85(2)	-
1935	156	14,692	-	-	98	-	-	165	-	-
1936	95	7,008	-	-	78	-	-	108	-	-
1937	89	7,286	-	-	59	-	-	74	-	-
Totals	4722	323,447	2795	28,129	4,810	612,121	77,884	10,147	61,038	288

(1) Included with "Meetings Addressed" after April, 1934

(2) No record kept of this item " " "

(3) Included with "Displays Placed" " " "

In addition, during the period July 1 to December 31, 1922, the following general informational work was performed: 251 meetings addressed with an attendance of 29,163 persons, 335 field demonstration meetings attended by 1,732 individuals, 374 displays placed, 35,067 publications distributed, 313 items published, and 2,500 posters and signs placed.

Service

Year	Initial Interviews	Follow-Up Calls	Persons Instructed In Field
1923	14,724	5,555	4,274
1924	15,984	6,804	6,158
1925	13,819	7,380	11,169
1926	12,153	7,309	11,559
1927	13,120	8,228	13,102
1928	15,644	8,625	8,952
1929	9,013	6,503	6,741
1930	7,905	5,568	3,166
1931	5,789	6,440	2,070
1932	6,996	4,988	1,884
1933	4,788	3,744	1,818
1934	4,379	2,667	2,123
1935	4,200	3,329	2,253
1936	3,239	2,403	2,222
1937	3,222	2,165	1,840
Totals	134,975	80,688	79,371

During the period July 1-Dec. 31, 1922, an additional 6,227 initial interviews & 1,924 follow-up calls were made, and 1,540 individuals received personal instruction in the field.

Cooperation

The informational and service activities have resulted in excellent public participation in blister rust control as evidenced by local cooperators making available \$1,040,903.80 for such work up to and including 1937. However, only \$1,026,244.53 of this amount was actually expended, the balance reverting to the contributors. All of the local funds were used on the regular control program except \$36,280.22 which were spent in connection with Federal Emergency activities. During the period 1918 to 1937, inclusive, 41,971 individual cooperators expended \$481,803.19 and expenditures of \$534,704.35 and \$9,736.99, respectively, were made from 2,008 town allotments and 36 county subscriptions. The individual cooperators actually furnished labor, or its equivalent in money, to eradicate the Ribes on their properties. Thousands of additional owners permitted the destruction of 887,516 cultivated Ribes without compensation. In addition to the above direct cooperation, thousands of individuals gave general support or personal aid to the control program. State expenditures, other than local cooperation, amounted to \$2,151,163.34, of which \$170,736.88 was spent on Federal Emergency programs.

Public interest and participation in blister rust control has been continued in the Northeastern States in spite of the depression and Federal Emergency programs. In fact, town cooperation reached high peaks in 1930 and 1931. Naturally during recent years there has been a decided decrease in the amount of local cooperation. This may be attributed chiefly to the fact that because of financial conditions and availability of Emergency funds little effort was made to secure such assistance, except to transport WPA crews. Tentative reports show that at the annual town meetings during March 1938, 44 towns in Maine and 51 towns in New Hampshire appropriated \$8,200 and \$13,060, respectively, for blister rust control. In 1932, during the worst year of the depression, individuals actually expended more money on Ribes eradication than during the preceding year. Expenditures by 4,913 individual owners during the past five years have amounted to \$27,364.34, even though no special efforts were made to secure such cooperation. Only three of the Northeastern States decreased state appropriations for control work during recent years. In New York, state funds were reduced from \$60,000 to \$51,500 in 1935, and substantial reductions occurred in New Hampshire and Massachusetts.

Individual cooperation in wild Ribes eradication has been solicited in all the Northeastern States, except New Jersey. However, such efforts have been restricted in New Hampshire where the work is performed chiefly in cooperation with towns, in Maine since 1930 for a similar reason, and in Rhode Island where, except during 1920, state funds have been used to pay the entire cost of the limited amount of regular control work.

Town cooperation in connection with the Regular control program has been obtained chiefly in New Hampshire, Maine, and Connecticut. However, some town funds have also been provided in Vermont and Massachusetts. In New Hampshire, 1,256 town appropriations, excluding those of 1938, have made available \$392,095.00 for control work. This amount represents nearly 75 percent of the total town money raised in New England since 1918. Many of the New Hampshire towns have consistently made yearly appropriations until their entire pine areas have been protected. In fact, initial control work has been completed in 163 New Hampshire towns. The town money in New Hampshire and Connecticut is turned over to the respective states and expended with additional state funds to clear definite town blocks of Ribes, irrespective of property lines.

In Maine, town cooperation has been obtained since 1921; 631 town appropriations making available \$114,700.96 for regular control work excluding 1938. Up to 1931, this town money, except for a few thousand dollars, was used to employ town foremen who aided the individual owners in eradicating Ribes concentrations on their properties. A revised state policy was inaugurated in Maine in 1931 whereby the town funds were used to employ crews, as in New Hampshire, and the control areas were systematically worked irrespective of property lines, the state paying one-third of the costs of eradicating the Ribes. The 14 town appropriations in Vermont, totaling \$1,422.75, have been used chiefly to pay the excess labor cost of foremen working with individual owners; but in one instance, a part of the money was spent in eradicating the Ribes on a town forest. Town money was secured in Massachusetts only during 1920 and 1921, when four appropriations, totaling \$1,700 were made for control work in Berkshire County. The town contributions, other than appropriations, in the Northeastern States during 1935-1937 totaled \$25,098.16. Practically all of this amount was spent on the WPA Program chiefly for transportation.

1937

State	Individual Cooperation				Town Cooperation			
	No. Cooperators		Amount Expended by Individual Cooperators	No. Town Appropriations	Contributions	Appropriated	Contributed	Total Expended
	Wild & Cult. Ribes Erad.	Cult. Ribes Erad. Only						
Maine	4	-	\$263.78	41	-	\$6,950.00	-	\$7,490.49
N.H.	2	-	45.95	53	7	13,800.00	333.50	14,210.04
Vt.	6	-	239.95	-	9	-	3,901.70	3,901.70
Mass.	27	195	3,502.80	-	5	-	2,070.37	2,070.37
Conn.	2	-	224.00	-	2	-	420.00	420.00
N.Y.	19	-	693.40	-	-	-	-	-
Penna.	13	-	193.20	-	-	-	-	-
Totals	73	195	5,168.08	94	23	20,750.00	6,725.57	28,092.60

*These amounts include some balances held over from previous years appropriations.

1922-1937

Maine	10,446	621	16	82,591.12	631	10	114,700.96	594.39	104,396.82
N.H.	544	-	-	39,512.15	1,093	16	366,060.00	681.25	364,419.84
Vt.	2,077	172	4	67,428.21	14	28	1,422.75	13,613.45	14,811.36
Mass.	10,774	10,385	-	91,410.09	-	20	-	8,943.07	8,943.07
R.I.	2	-	-	31.36	-	-	-	-	-
Conn.	293	196	-	8,553.69	25	6	14,346.75	1,266.00	15,377.89
N.Y.	5,829	-	1	157,987.17	-	-	-	-	-
Penna.	239	12	-	2,047.43	-	-	-	-	-
Totals	30,204	11,383	21	449,561.27	1,763	79	496,530.46	25,098.16	508,037.73

1918-1937

Maine	10,476	621	16	83,754.19	631	10	114,700.96	594.39	104,396.62
N.H.	688	-	-	47,609.71	1,266	16	392,095.00	681.25	389,476.19
Vt.	2,193	172	4	71,449.32	14	28	1,422.75	13,613.45	14,811.36
Mass.	10,855	10,383	-	97,394.19	4	20	1,700.00	8,943.07	10,642.29
R.I.	3	-	-	581.36	-	-	-	-	-
Conn.	295	195	-	8,953.69	25	6	14,346.75	1,266.00	15,377.89
N.Y.	5,870	-	1	170,013.25	-	-	-	-	-
Penna.	239	12	-	2,047.43	-	-	-	-	-
Totals	30,567	11,383	21	481,803.19	1,929	79	524,265.46	25,098.16	534,701.36

In addition, 5 individuals in New Hampshire expended \$42.85 on control work during 1917. In New York, 33 county appropriations totaling \$8,650.49 were made for control work during the period 1922-1937, inclusive, while in New Hampshire 3 county appropriations amounting to \$1,086.50 were made during 1933 and 1937.

Table 6. - Local Cooperation in Blister Rust Control Work in Northeastern States
1918-1937, Inclusive

Year	Individual Cooperation				Town Cooperation			County Cooperation	
	No. Cooperators		Amount Spent by Indiv. Cooperators	No. Town Appropriations	Contributions	Amount Town Money		No. County Allotments	Amount County Funds Expended
	Cult. Ribes Erad. Only	Wild. Cult. Ribes Erad.				Contributed	Total Expended		
1918	-	19	\$ 4,188.68	43	-	-	5,029.11	-	-
1919	-	50	6,845.74	58	-	-	7,907.31	-	-
1920	-	152	8,498.78	51	-	-	7,992.09	-	-
1921	-	142	12,908.77	34	-	-	5,827.06	-	-
1922	-	971	28,035.13	58	-	-	18,448.62	-	-
1923	664	1,968	40,969.47	121	-	-	40,160.59	-	-
1924	1,714	3,050	44,622.07	151	-	-	48,898.50	-	-
1925	958	3,069	39,720.06	132	-	-	40,351.31	-	-
1926	741	3,285	44,254.88	123	-	-	41,223.95	-	-
1927	834	3,537	49,040.61	126	-	-	38,299.74	-	-
1928	991	3,390	54,667.68	143	-	-	39,038.73	-	-
1929	1,019	3,564	49,786.39	156	-	-	41,323.28	4	838.90
1930	971	2,419	32,999.65	166	-	-	46,880.12	3	1,112.10
1931	758	1,172	18,592.61	175	-	-	47,455.36	8	2,699.81
1932	313	1,488	19,509.18	81	-	-	19,575.96	6	1,252.80
1933	463	854	8,944.07	55	-	-	11,414.04	4	694.42
1934	1,331	774	8,687.68	15	-	-	4,573.95	5	881.32
1935	411	491	3,258.31	66	25	4,243.92	20,198.37	1	425.60
1936	20	301	1,306.20	84	31	14,128.67	22,023.68	2	987.00
1937	195	73	5,168.08	94	28	6,725.57	28,092.60	3	849.71
Totals	11,585	30,537	481,808.19	1,929	79	25,098.16	534,704.35	36	9,736.91

In addition, 5 individuals in New Hampshire expended \$42.85 on control work during 1917. A small amount of county money was expended in New York prior to 1929, but it was reported under "Individual Cooperation."

Results Accomplished in Blister Rust Control Under
Regular Cooperative Program in the Northeastern States.

Ribes Eradication

Experimental control work in New England and New York during the period 1918 to 1921, inclusive, resulted in 1,042,273 acres being cleared of 15,002,878 wild Ribes and 91,725 cultivated bushes at an average cost of 41 cents per acre. The cost per acre was reduced from 73 cents in 1918 to 24 cents in 1921. In the application of control measures under the Regular Cooperative Program since that time, an additional area of 9,272,120 acres in the Northeastern States was eradicated of 91,303,701 wild and 535,936 cultivated Ribes at a per acre cost of 20.2 cents. This acreage includes, however, 1,259,396 acres reworked since 1922 at a cost of 19.2 cents per acre. Therefore, under the Regular program up to 1937, inclusive, control of blister rust had been established on 9,054,997 acres (pine areas plus protection zones), and in connection with the maintenance of control, 12.2%, or 1,259,396 acres had been reworked. This combined work resulted in the destruction of 106,306,579 wild and 627,711 cultivated bushes.

The results since 1922 were dependent upon the amount of local cooperation secured by the district leaders and funds provided by the cooperating states. State scouts were used to determine the location and abundance of Ribes chiefly in those townships where local cooperation had been obtained. In sections where the bushes were few, they were destroyed by the state scouts; those portions containing a general distribution or abundance of Ribes were definitely indicated as requiring crew work. The cost of such crew work was paid by the local cooperators and the state, the latter usually furnishing foremen to direct the activities of the laborers provided by the local cooperators. The standard eradication crew used on the Regular program consisted of five laborers and a foreman. However, in the case of individual cooperation, the owner frequently was unable to provide a full-size crew; consequently, many jobs were worked with crews of smaller size. In those townships where local cooperation had not been solicited or obtained, only a limited amount of control work was performed prior to the advent of the Emergency programs.

The low cost per acre under the Regular program may be attributed to the following facts. The best qualified men available, other than owners' labor, could be selected for foremen and crew members and usually these men were experienced in control work. These workers spent eight hours per day in the field and were usually accustomed to woods work. A considerable portion of the control area was worked by experienced scouts rather than crews as was necessary under the Emergency programs. Also, many of the Ribes concentrations were not worked until the advent of the Emergency activities.

The results accomplished in Ribes eradication work under the Regular program in each of the Northeastern States are shown in Tables 7 to 12. All states, except Rhode Island and New Jersey performed control work under the Regular program in 1937. As indicated in Table 7, a total of 1,721,705 wild Ribes and 2,022 cultivated bushes were destroyed on the 83,593 acres examined as a result of 11,236 man days of labor. The total cost of this work was \$41,328.00, or 49.4 cents per acre. Of the total acreage worked, 44.6% was in New Hampshire. The total acreage examined represents 11.7% of the total area worked in this Region during 1937.

No satisfactory comparison can be made between the results of the initial and re-eradication work (Tables 8 and 9) as the same areas are not involved. However, it will be noted that based on totals for all states only half as many Ribes were found per acre on the re-eradication work, and the man days and cost per acre were slightly lower for the maintenance project. As indicated in Table 10, there has been a marked increase

the average cost per acre for the work during the past two years. This may be attributed chiefly to the relatively small acreage protected and to a greater abundance of Ribes in the areas worked.

Prior to 1934, no record was kept of man-days for the Ribes eradication work under the Regular program. In this report, the man-days data for the period 1918-1928 were compiled for each state by dividing the total cost of the Ribes eradication work by an arbitrary daily wage rate of \$3.20.

Table 7. - Summary of Ribes Eradication Work Performed Under Regular Cooperative Program in Northeastern States During 1937.

(Excludes nursery sanitation and black currant elimination)

State	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Local Coop.	State	Gov't.	Total	Cost	Ribes	Per Acre
		Total Worked	Pine Protected	Wild	Cult.								
Maine	Initial	3,281	1,035	190,658	139	897	2,511.76	245.91	8.50	2,766.17	.843	58.1	.27
	Re-Erad.	9,237	2,790	121,175	4	1,511	5,934.60	649.33	10.50	4,624.43	.501	13.1	.16
	Total	12,518	3,825	311,833	143	2,408	6,476.36	895.24	19.00*	7,390.60	.590	24.9	.19
N.H.	Initial	9,300	5,735	269,843	456	1,617	4,307.42	1,059.75	-	5,367.17	.577	29.0	.17
	Re-Erad.	28,837	18,440	344,157	223	3,512	9,631.57	2,554.75	-	12,186.32	.423	11.9	.12
	Total	38,137	24,175	614,000	679	5,129	13,938.99	3,614.50	-	17,553.49	.460	16.1	.13
Vt.	Initial	283	18	3,126	-	41	156.25	-	-	156.25	.543	10.9	.14
	Re-Erad.	25	6	528	-	4	13.00	-	-	13.00	.520	21.1	.16
	Total	313	24	3,654	-	45	169.25	-	-	169.25	.541	11.7	.14
Mass.	Initial	1,214	225	5,517	159	161	637.50	-	-	637.50	.525	4.5	.13
	Re-Erad.	5,814	2,062	52,391	4	1,044	2,605.00	1,814.68	63.05	4,482.73	.771	9.0	.18
	Total	7,028	2,287	57,908	163	1,205	3,242.50	1,814.68	63.05**	5,120.23	.729	8.2	.17
N.Y.	Initial	17,553	8,776	202,986	973	1,384	847.60	6,022.56	-	6,870.16	.391	11.6	.08
	Re-Erad.	6,903	3,452	56,137	43	359	205.50	1,513.84	-	1,719.74	.249	8.1	.05
	Total	24,456	12,228	259,123	1016	1,743	1,053.50	7,536.40	-	8,589.90	.351	10.6	.07
Penn.	Initial	1,141	313	475,185	21	705	5.20	2,499.33	-	2,504.53	2.20	416.5	.62
	Re-Erad.	-	-	-	-	-	-	-	-	-	-	-	-
	Total	1,141	313	475,185	21	705	5.20	2,499.33	-	2,504.53	2.20	416.6	.62
Totals	Initial	32,777	16,102	1,147,315	1748	4,805	8,465.73	9,827.55	8.50	18,301.78	.558	35.0	.15
	Re-Erad.	50,816	25,750	574,388	274	6,430	16,420.07	6,532.60	73.55	23,026.22	.453	11.3	.13
	Total	83,593	42,852	1,721,703	2022	11,235	24,885.80	16,360.15	82.05	41,328.00	.494	20.6	.13

Basis of Costs:

*P.A. funds.

**B.E. and P.Q. funds.

Includes actual cost or value of owners' labor usually figured at 40¢ per hour; and actual cost of other laborers, scouts and crew foremen while engaged in locating and pulling Ribes; cost of crew transportation; and miscellaneous expenses for trail paper, picks, etc.

Table 8. - Initial Ribes Eradication Work Performed Under Regular Cooperative Program in Northeastern States During Period 1918-1937, Inclusive.
(Excludes nursery sanitation and cultivated black currant elimination)

State	Total Acreage Worked	Ribes Pulled		Total Man Days	Total Cost	Per Acre		
		Wild	Cult.			Cost	Ribes	Man Days
Maine	2,768,489	20,134,944	118,594	75,649	\$ 241,818.34	.087	7.5	.08
N.H.	2,769,291	38,450,636	141,642	183,721	569,119.64	.213	13.9	.07
Vt.	192,187	2,140,052	10,286	26,327	84,271.80	.438	11.1	.14
Mass.	1,784,247	13,043,707	238,526	87,087	278,890.58	.156	7.3	.05
R.I.	273,179	190,069	12,281	9,428	30,165.64	.110	0.7	.03
Conn.	229,550	1,611,118	18,576	16,754	53,610.65	.234	7.0	.07
N.Y.	972,028	20,093,774	59,542	229,548	743,010.65	.764	20.7	.24
Penna.	66,026	3,776,969	5,498	10,824	34,803.44	.527	57.2	.16
Totals	9,054,997	99,441,289	604,945	639,238	2,055,690.74	.227	11.0	.07

Basis of Costs: See Page 22.

Table 9. - Ribes Re-Eradication Work Performed Under Regular Cooperative Program in Northeastern States During Period 1918-1937, Inclusive.

(Excludes nursery sanitation and cultivated black currant elimination)

State	Total Acreage Re-Examined	Ribes Pulled		Total Man Days	Total Cost	Per Acre		
		Wild	Cult.			Cost	Ribes	Man Days
Maine	80,395	1,052,299	1,913	7,466	23,734.42	.298	13.1	.09
N.H.	440,624	2,891,903	3,633	22,661	73,780.62	.167	6.6	.05
Vt.	32,652	159,891	833	3,340	10,684.76	.327	4.9	.10
Mass.	476,091	859,988	9,412	14,627	49,222.84	.103	1.8	.03
R.I.	16,885	10,408	75	643	2,072.71	.123	0.6	.04
Conn.	36,131	448,593	3,706	6,939	22,654.93	.627	12.4	.19
N.Y.	165,992	957,971	3,136	14,415	50,505.86	.304	5.8	.09
Penna.	10,596	484,436	25	2,741	8,947.68	.844	45.7	.26
Totals	1,259,396	6,865,290	22,763	72,835	241,633.82	.192	5.5	.06

Basis of Costs: See Page 22.

Table 10. - Summary of Initial and Re-Eradication Work Performed Under Regular Cooperative Program in Northeastern States During Period 1918-1937, Inclusive.

(Excludes nursery sanitation and cultivated black currant elimination)

Year	Total Acreage Worked	Ribes Pulled		Total Man Days	Total Cost	Per Acre		
		Wild	Cult.			Cost	Ribes	Man Days
1918	157,458	2,413,887	22,150	31,207	\$ 99,863.40	.727	17.6	.23
1919	262,043	4,549,948	27,877	43,595	139,500.56	.553	18.1	.17
1920	270,318	4,301,940	25,936	29,271	93,662.74	.346	15.9	.11
1921	382,454	3,737,103	15,762	29,027	92,885.96	.243	9.8	.08
1922	475,217	4,849,812	16,061	30,257	96,818.66	.204	10.2	.06
1923	892,639	7,969,917	55,074	50,277	160,883.87	.180	8.9	.06
1924	1,012,986	9,527,787	73,858	53,102	169,927.90	.168	9.4	.05
1925	834,894	7,346,289	59,458	43,376	138,802.49	.166	8.8	.05
1926	815,187	8,858,071	51,471	46,417	148,537.83	.182	10.9	.06
1927	899,852	8,046,826	49,745	48,631	155,618.50	.173	8.9	.05
1928	883,712	6,680,001	60,561	50,421	161,347.40	.185	7.6	.06
1929	932,787	7,668,890	76,450	55,951	179,043.04	.192	8.2	.06
1930	712,229	8,186,105	30,962	49,895	159,665.95	.224	11.5	.07
1931	578,291	7,174,121	21,978	49,950	159,839.84	.276	12.4	.09
1932	544,620	4,786,328	25,091	39,057	124,983.41	.229	8.8	.07
1933	283,514	3,845,543	7,340	23,231	74,341.79	.262	13.6	.08
1934	147,194	2,144,445	2,690	12,286	46,310.80	.315	14.6	.08
1935	140,408	1,573,170	2,536	10,368	39,787.74	.283	11.2	.07
1936	34,999	926,695	689	4,619	14,174.64	.406	26.5	.13
1937	83,593	1,721,703	2,022	11,235	41,328.00	.494	20.6	.13
Totals	10,314,393	106,306,579	627,711	712,075	2,297,324.56	.223	10.3	.07

Basis of Costs: See Page 22.

Table 11. Recapitulation of Total Costs of Ribes Eradication Work Under Regular Cooperative Program in Northeastern States During Period 1918-1937, Inclusive.

Year	Individuals	Towns	State	Gov't.	Counties	Total
1918	\$ 4,138.63	\$ 5,029.11	\$ 36,970.29	\$ 53,675.37	-	\$ 99,863.40
1919	6,645.74	7,907.31	45,871.64	79,075.87	-	139,500.56
1920	8,498.78	7,992.09	18,403.73	58,768.14	-	93,662.74
1921	12,908.77	5,827.06	38,886.52	35,263.61	-	92,885.96
1922	28,035.13	16,898.68	48,683.94	3,200.90	-	96,818.66
1923	40,969.47	40,150.59	76,951.28	2,812.53	-	160,883.87
1924	44,622.07	48,898.50	71,804.15	4,603.18	-	169,927.90
1925	39,720.06	40,351.31	56,251.26	2,479.86	-	138,802.49
1926	44,172.88	41,223.95	60,304.66	2,836.34	-	148,537.83
1927	49,040.81	33,299.74	64,765.56	3,512.44	-	155,618.56
1928	64,667.68	39,038.73	64,329.47	3,311.52	-	161,347.40
1929	49,785.39	41,323.28	82,972.66	4,127.81	833.90	179,043.04
1930	31,130.24	46,880.12	72,270.65	8,272.84	1,112.10	169,665.95
1931	17,746.67	47,455.36	85,896.02	6,041.97	2,699.92	159,839.84
1932	18,113.90	19,568.23	78,448.22	7,600.18	1,252.88	124,983.41
1933	8,472.67	11,145.59	52,728.27	1,300.77	694.49	74,341.79
1934	3,833.98	2,649.93	38,945.54	-	881.35	46,310.80
1935	2,436.06	15,954.45	20,971.63	-	425.60	39,787.74
1936	107.60	7,895.01	6,172.03	-	-	14,174.64
1937	3,875.68	20,275.87	16,360.15	82.05	734.25	41,328.00
Totals	468,972.11	504,764.91	1,037,987.67	276,965.38	8,634.49	2,297,324.56

AMOUNT OF COOPERATIVE FUNDS EXPENDED EACH YEAR FOR RIBES ERADICATION WORK
ON REGULAR BLISTER RUST CONTROL PROGRAM IN NORTHEASTERN STATES
1918 to 1957, INCLUSIVE.

Thousands
of Dollars
200

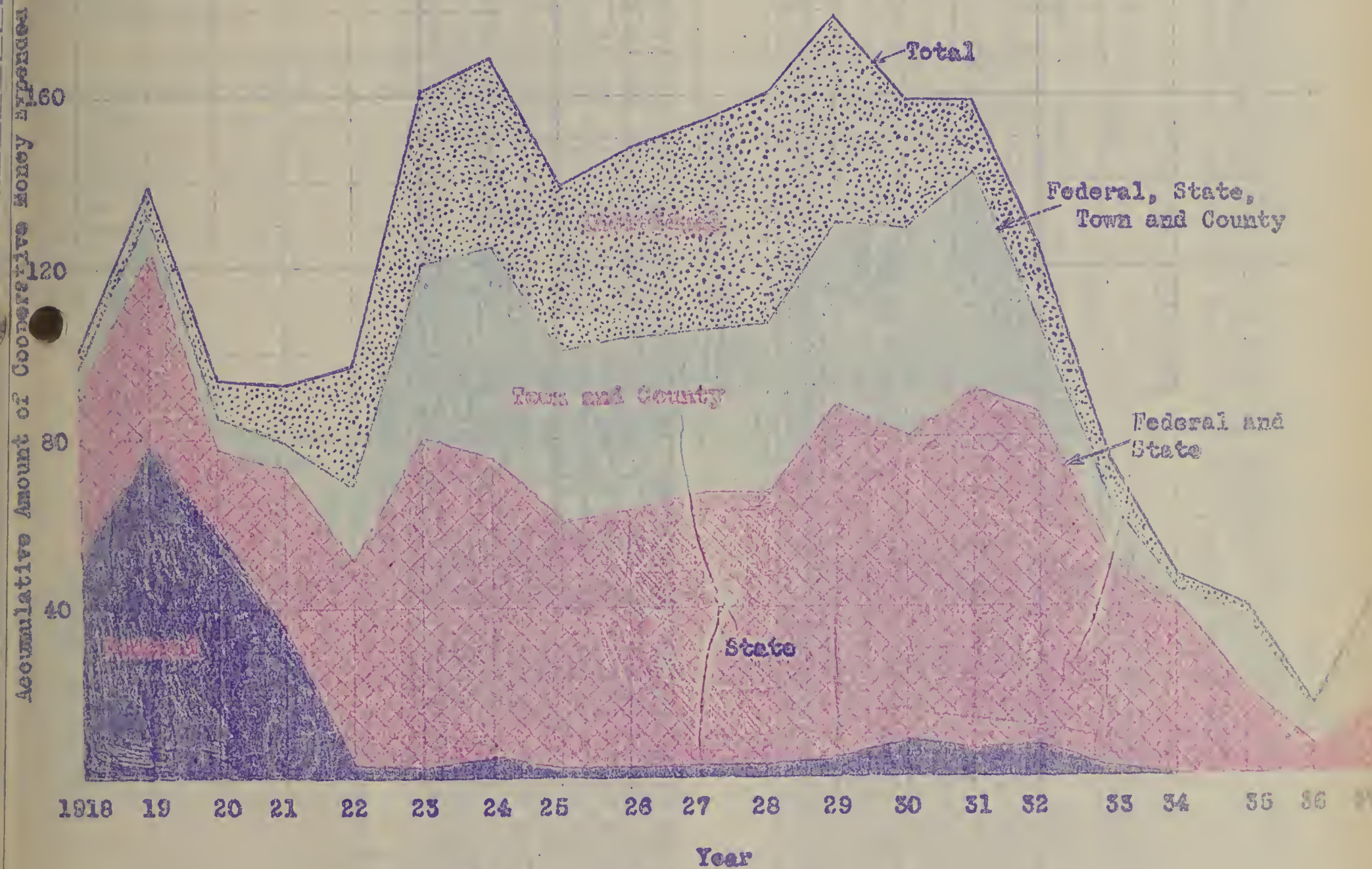


Table 12. Initial and Re-Eradication Work Performed Under Regular Cooperative Program in Each of The Northeastern States.

(Excludes nursery sanitation and cultivated black currant elimination)

1922-1937, Inclusive.

State	Total Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre			
		Wild	Cult.		Individuals	Towns & Counties	State	Gov't.	Total	Cost	Ribes	Man Days
Maine	2,668,264	20,628,514	118,931	76,856	81,108.05	101,836.39	27,884.32	35,045.86	246,874.62	.092	7.7	.03
N.H.	2,639,010	35,006,849	83,788	168,525	39,339.87	362,907.15	137,965.45	1,547.25	541,759.72	.205	13.3	.06
Vt.	206,861	2,027,600	10,837	25,213	67,271.26	1,077.91	11,281.17	1,073.71	80,704.05	.390	9.8	.12
Mass.	2,178,461	11,488,822	237,593	87,753	83,102.79	-	198,992.93	1,342.80	283,438.52	.130	5.3	.04
N.I.	186,803	119,233	8,105	4,836	31.36	-	13,612.64	1,832.80	15,476.80	.083	0.6	.03
Conn.	252,241	1,934,451	22,274	21,392	7,146.08	12,187.89	42,327.15	7,242.35	68,903.47	.273	7.7	.08
N.Y.	1,063,868	15,936,807	48,935	180,833	157,358.75	8,634.49	425,495.36	15.00	591,503.60	.556	15.0	.17
Penna.	76,622	4,261,425	5,523	13,565	1,372.03	-	40,296.47	2,082.62	43,751.12	.571	55.6	.18
Totals	9,272,120	91,303,701	535,986	578,973	456,730.19	486,643.83	897,855.49	50,182.39	1,871,411.90	.202	9.8	.06

1918-1937, Inclusive.

Maine	2,848,884	21,187,243	120,510	83,015	82,271.12	101,836.39	35,940.15	47,536.10	286,582.76	.093	7.4	.03
N.H.	3,209,916	41,342,539	145,305	206,382	47,437.43	387,963.50	166,567.08	60,932.25	662,900.26	.207	12.9	.06
Vt.	224,839	2,299,743	11,119	29,667	71,292.37	1,077.91	16,439.13	6,147.15	94,956.58	.422	10.2	.13
Mass.	2,260,333	13,905,695	247,938	101,714	89,086.89	1,699.22	214,157.33	23,169.98	328,113.42	.145	6.2	.04
N.I.	290,064	200,475	12,356	10,074	581.36	-	21,064.21	10,592.78	32,238.35	.111	0.7	.04
Conn.	265,711	2,059,714	22,282	23,693	7,546.08	12,187.89	46,940.17	9,591.44	76,265.58	.287	7.8	.09
N.Y.	1,138,020	21,051,745	62,678	243,963	169,384.83	8,634.49	498,583.13	16,914.06	793,516.51	.697	18.5	.21
Penna.	76,622	4,261,425	5,523	13,565	1,372.03	-	40,296.47	2,082.62	43,751.12	.571	55.6	.18
Totals	10,314,393	106,306,579	627,711	712,073	466,972.11	513,399.40	1,037,987.67	2,966.38	2,297,324.56	.223	10.3	.07

*County funds.

Basis of Costs: See Page 22.

Federal Projects on Government Lands - Regular Cooperative Program

Control measures under the Regular program have been applied on the white pine areas of the National Forests and Parks in the Northeastern States where the pine is of sufficient value to justify the cost of protection. Up to 1933, such work was conducted as a regular Federal project, the Bureau of Plant Industry cooperating with the National Forest and Park Services. With the exception of a small project on the Allegheny National Forest, all control work on Government owned lands in the Northeastern States since 1933 has been performed under the C.C.C. Program.

The project at Acadia National Park in Maine was begun in 1929 and has been continued each succeeding year. All control work at this Park during 1933-1937 was performed by crews from the two local C.C.C. camps. The initial control project is practically completed and about 1/3 of the area has been reworked. Plans have been made to continue the work with C.C.C. labor during 1938.

With the exception of recent acquisitions, all white pine areas on the White Mountain National Forest have been given initial protection. The work was conducted as a regular federal project during the period 1924-1931, inclusive; while since 1933, only C.C.C. personnel has been used.

On the Allegheny National Forest in Pennsylvania, the Hearts Content tract was initially cleared of Ribes in 1929. The entire control area of 461 acres was reexamined for Ribes in 1931, and the most likely Ribes sites, totalling 166 acres, were reworked again in 1933. During 1932, an area of 135 acres known as the Hazelwood Oil Company tract was given initial protection, while in 1933 two additional pine areas at Kelly Pines and Sandstone Springs Camp sites were initially cleared of Ribes. Since 1933, all control work on this forest has been performed by C.C.C. crews. Most of the initial control projects have been completed, and protection maintained by periodic reworkings. No control work was conducted on this Forest during 1937, but during 1938 many areas will be reworked.

Table 13 - Summary of Ribes Eradication Work on Federal Lands in Connection With Regular Cooperative Program, 1924-1933, Inclusive

(Data included in preceding summaries of control work under Regular Cooperative Program.)

Project	Type of Erad.	Acreage Examined	Ribes Pulled		Cost					Per Acre	
			Wild	Cult.	B.P.I.	State	Forest Service	Park Service	Total	Cost	Ribes
Acadia National Park, Me.	All Initial	7,726	503,920	-	3145.83	-	-	8345.53	11,491.36	1.49	65.1
White Mt. National Forest, N.H.	All Initial	6,779	182,493	-	75.63	224.11	1471.62	-	1,771.36	.261	20.4
Allegheny National Forest, Pa.	Initial	891	129,019	8	136.58	-	507.71	-	644.27	.723	10.8
	Re-Erad.	627	19,993	-	71.29	-	272.06	-	343.35	.548	31.9
	Total	1,518	149,012	8	207.85	-	779.77	-	987.62	.651	32.3
Totals	Initial	15,396	815,432	8	3358.02	224.11	1979.35	8345.53	13,906.99	.903	65.0
	Re-Erad.	627	19,993	-	71.29	-	272.06	-	343.35	.548	31.9
	Total	16,023	835,425	8	3429.31	224.11	2251.39	8345.53	14,250.34	.889	62.1

Basis of costs: - Includes actual cost of laborers, scouts, and foremen engaged in locating and pulling Ribes; cost of crew transportation; and miscellaneous expenses for trail paper, picks, etc.

The control work performed on federal lands under the C.C.C. Program during the period 1933-1937 inclusive, is summarized in Table 29, and the results for all work on such areas under the Regular and C.C. C. Programs are given in Table 95.

Nursery Sanitation - Regular Cooperative Program

White pines must be grown under absolutely sanitary conditions, as regards Ribes, in order to prevent infection from blister rust. Therefore, it is essential that the white pine stock in each nursery be protected by eradicating all Ribes within 1500 feet and all European black currants from within one mile. All of the Northeastern States, except Rhode Island, have state nurseries growing white pines. Control of the disease has been established and is being maintained in all 18 of these nurseries and 3 federal nurseries in this Region. Most of the commercial pine growing nurseries are located in Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania. In the other Northeastern States there are only a few such nurseries producing white pines. Sanitation zones have been established around most of the important commercial nurseries in New England. Control work around the private nurseries in New York has been limited due to the relatively few white pines grown and the abundance of cultivated Ribes within the prescribed sanitation zones which would necessitate a large expenditure by the nurserymen for compensation if these bushes were removed. According to the present state blister rust law in New York, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes-free zones around commercial nurseries, but fair compensation must be paid for such bushes by the person owning or operating the protected nursery. None of the commercial nurseries growing white pine in New Jersey has established sanitation zones. In Pennsylvania nine commercial nurseries have taken such action. However, in both states an effort is being made to extend protection to the most important of the commercial nurseries. The status of nursery sanitation work in the various Northeastern States as of December 31, 1937, is indicated in Table 100.

Since 1929, a separate record has been kept of the Ribes eradication work performed in the protection of white pine in the nurseries. Prior to 1930, the results of such activities were included in the regular Ribes eradication summaries.

During 1937, nursery sanitation work was performed under the Regular Cooperative Program in Massachusetts, New York, and Pennsylvania. The environs of 12 nurseries were re-examined for Ribes and initial control work was performed around two nurseries in Pennsylvania. The environs of 12 nurseries were re-examined for Ribes and initial control work was performed around two nurseries in Pennsylvania. The results of the 1937 sanitation work, by states, are shown in Table 14, while Tables 15 and 16 give the totals for the period 1930-1937, inclusive, by states and years, respectively. A marked decrease in the number of Ribes per acre is apparent in the re-eradication projects. In fact, an average of only 1.4 bushes per acre was found.

Table 14. - Summary of Nursery Sanitation Work Conducted Under Regular Cooperative Program in Northeastern States During 1937.

State	Type of Erad.	No. Nurseries Worked	Acreage Examined	Ribes Pulled		Total Man Days	Cost			Per Acre		
				Wild	Cult.		Indiv.	State	Total	Cost	Ribes	Man Days
Mass.	Re-Erad.	3	345	207	-	58	-	326.85	326.85	.947	0.6	.17
N.Y.	Re-Erad.	5	8190	6180	35	218	39.50	784.63	824.13	.101	0.8	.03
	Initial	2	390	-	25	$\frac{1}{2}$	1.60	-	1.60	.004	-	.001
Penns.	Re-Erad.	4	2034	179	31	49	2.40	156.15	158.55	.078	0.1	.02
	Total	6	2424	179	56	49 $\frac{1}{2}$	4.00	156.15	160.15	.066	0.1	.02
	Initial	2	390	-	25	$\frac{1}{2}$	1.60	-	1.60	.004	-	.001
Totals	Re-Erad.	12	10,569	6566	66	323	41.90	1267.63	1309.53	.124	0.6	.03
	Total	14	10,959	6566	91	323 $\frac{1}{2}$	43.50	1267.63	1311.13	.120	0.6	.03

Basis of Costs: Includes cost of laborers, scouts and foremen while engaged in locating and eradicating Ribes in nursery sanitation zones (labor furnished by owners usually charged at rate of 40 cents per hour) - cost of crew transportation.

Table 15. - Summary of Nursery Sanitation Work Under Regular Cooperative Program in Northeastern States, 1930-1937, Inclusive.

By States

State	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost				Per Acre			
			Wild	Cult.		Indiv.	Towns	State	B.F.I.	Total	Cost	Ribes	Man Days
Maine	Initial	206	108,516	22	163	324.45	-	198.20	-	522.65	2.54	502.6	.79
	Re-Erad.	272	8,873	-	74	-	156.18	82.27	-	238.45	.877	32.6	.27
	Total	478	112,389	22	237	324.45	156.18	280.47	-	761.10	1.59	235.1	.50
N.H.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,327	7,647	-	144	172.28	-	308.71	-	480.99	.362	5.8	.11
	Total	1,327	7,647	-	144	172.28	-	308.71	-	480.99	.362	5.8	.11
Vt.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,150	3,082	-	160	-	-	516.01	-	516.01	.449	2.7	.14
	Total	1,150	3,082	-	160	-	-	516.01	-	516.01	.449	2.7	.14
Mass.	Initial	682	7,567	112	85	110.05	-	212.79	10.00	332.84	.488	11.1	.13
	Re-Erad.	3,814	3,038	179	622	89.20	-	2,510.71	-	2,599.91	.682	0.8	.16
	Total	4,496	10,605	291	707	199.25	-	2,723.50	10.00	2,932.75	.652	2.4	.16
R.I.	Initial	1,190	133	520	158	-	-	343.58	162.87	506.45	.428	0.1	.13
	Re-Erad.	4,563	4,622	165	110	-	-	749.62	-	749.62	.164	1.0	.02
	Total	5,753	4,755	685	268	-	-	1,093.18	162.87	1,256.05	.218	0.8	.05
Conn.	Initial	6,587	5,352	102	215	204.32	-	345.69	139.92	689.93	.105	0.8	.05
	Re-Erad.	34,551	5,855	864	1,137	557.04	-	2,910.44	610.87	4,078.35	.118	0.2	.05
	Total	41,138	11,207	966	1,352	761.36	-	3,256.13	750.79	4,768.28	.116	0.3	.05
N.Y.	Initial	3,110	26,017	634	382	5.60	-	1,219.95	-	1,225.55	.394	8.4	.12
	Re-Erad.	59,172	95,678	1,155	3,812	246.57	-	12,349.63	-	12,596.20	.213	1.6	.06
	Total	62,282	121,695	1,790	4,194	252.17	-	13,569.58	-	13,821.75	.222	2.0	.07
W.J.	Initial	600	462	49	7	-	-	22.20	-	22.20	.032	0.8	.01
	Re-Erad.	610	569	-	8	-	-	31.47	22.50	53.97	.088	0.9	.01
	Total	1,210	1,031	49	15	-	-	53.67	22.50	76.17	.063	0.9	.01
Penn.	Initial	4,115	35,920	491	2612	285.30	-	588.45	36.80	860.55	.209	8.7	.06
	Re-Erad.	6,119	27,900	34	921	37.15	-	2,681.81	-	2,718.96	.444	4.6	.15
	Total	10,234	63,820	525	1,182	272.45	-	3,270.24	36.80	3,679.49	.350	6.2	.12
Totals	Initial	16,490	178,967	1,930	1,2712	879.72	-	2,930.82	349.59	4,160.13	.252	10.9	.08
	Re-Erad.	111,578	157,264	2,398	6,988	1102.24	156.18	22,140.67	633.37	24,032.46	.215	1.4	.06
	Total	128,068	336,231	4,328	8,259	1181.96	156.18	25,071.49	982.96	28,192.59	.220	2.6	.06

Basis of Costs: See Page 28.

Table 16. - Summary of Nursery Sanitation Work Under Regular Cooperative Program in Northeastern States, 1930-1937, Inclusive.

By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled		Indiv.	Towns	State	B.P.I.	Total	Per Acre		
			Wild	Cult.						Cost	Ribes	Man Days
1930	Initial	4,973	110,704	182	528.77	-	905.19	-	1,433.96	.288	22.3	.09
	Re-Erad.	20,752	59,542	643	568.89	-	4,193.33	-	4,767.22	.230	2.9	.07
	Total	25,725	170,246	825	1,097.66	-	5,103.52	-	6,201.18	.241	6.6	.08
1931	Initial	3,048	6,117	55	5.60	-	240.36	139.92	385.88	.127	2.0	.04
	Re-Erad.	26,776	26,128	1,086	117.69	-	4,863.42	372.50	5,553.61	.200	1.0	.06
	Total	29,824	32,245	1,141	123.29	-	5,103.78	512.42	5,739.49	.192	1.1	.06
1932	Initial	4,759	16,478	1,222	50.65	-	1,588.32	172.87	1,811.84	.381	3.5	.11
	Re-Erad.	12,903	12,543	60	155.51	7.73	3,828.16	5.33	3,996.72	.310	1.0	.10
	Total	17,662	29,021	1,282	206.16	7.73	5,416.47	178.20	5,808.56	.329	1.6	.10
1933	Initial	1,490	19,102	32	59.40	-	196.95	36.80	293.15	.197	12.8	.05
	Re-Erad.	18,335	33,280	368	183.50	148.45	4,608.74	255.54	5,196.23	.283	1.8	.07
	Total	19,825	52,382	400	242.90	148.45	4,805.69	292.34	5,489.38	.277	2.6	.07
1934	Initial	1,682	24,958	94	186.80	-	-	-	186.80	.111	14.8	.03
	Re-Erad.	7,131	7,465	-	-	-	907.00	-	907.00	.126	1.0	.03
	Total	8,863	32,423	94	186.80	-	907.00	-	1,093.80	.123	3.7	.03
1935	Initial	148	1,608	320	46.90	-	-	-	46.90	.317	10.9	.13
	Re-Erad.	11,374	6,548	145	34.75	-	1,178.78	-	1,213.53	.107	0.5	.03
	Total	11,522	7,156	465	81.65	-	1,178.78	-	1,260.43	.109	0.6	.03
1936	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	3,688	6,194	30	-	-	1,288.62	-	1,288.62	.349	1.7	.09
	Total	3,688	6,194	30	-	-	1,288.62	-	1,288.62	.349	1.7	.09
1937	Initial	390	-	25	1.60	-	-	-	1.60	.004	-	.001
	Re-Erad.	10,569	6,568	66	41.90	-	1,267.63	-	1,309.53	.124	0.6	.03
	Total	10,959	6,568	91	43.50	-	1,267.63	-	1,311.13	.120	0.6	.03
Total	Initial	16,490	178,967	1,930	879.72	-	2,930.82	349.69	4,160.13	.262	10.9	.03
	Re-Erad.	111,578	157,264	2,398	1,102.24	156.18	22,140.67	633.37	24,032.46	.215	1.4	.06
	Total	128,068	336,231	4,328	1,981.96	156.18	25,071.49	982.96	28,192.59	.220	2.6	.06

Basis of Costs: See Page 28.

Ribes Nigrum Elimination - Regular Cooperative Program

The cooperating states are eliminating *Ribes nigrum* as rapidly as practicable under existing conditions. Such bushes are an important factor in the long distance spread and local establishment of the rust. The elimination of these *Ribes* has been conducted as a special project in four Northeastern States - Connecticut (1930-1935), Massachusetts (1930-1937), Rhode Island (1929-1933), and New York (1928-1936). The work has been completed in all of these states, except New York. In that state containing 1,012 townships, the project has been finished in 225 townships and partly completed in 50 others. All of the mentioned states, except Massachusetts, have laws which prohibit the possession of such bushes. In the other five Northeastern States, the cultivated black currants are destroyed in connection with the work of eradicating wild *Ribes* and other cultivated bushes. It may, however, be advisable to make special arrangements for eliminating *Ribes nigrum* outside the control areas. The section of the Northeast now most in need of black currant elimination comprises Pennsylvania, New Jersey, and the western half of New York where the pine areas are scattered. However, many factors need careful consideration before adopting a policy regarding the elimination of *Ribes nigrum* in these remaining unworked areas.

Summary of 1937 Activities

Black currant elimination work under the Regular Cooperative Program during 1937 was restricted to Massachusetts where the project was completed in the City of Worcester. The location work was performed in 1935 and 1936 when 204 plantings containing 888 bushes were found and recorded. All of these 204 locations were checked in 1937 and it was ascertained that 80% of the plantings and 77% of the bushes had been destroyed by the owners in response to letters sent by the district blister rust control leader. The remaining bushes were removed by state employees during 1937. This 1937 work required 69 man days labor and cost \$318.74. Of this total, \$99.90 was charged for the time of the owners in removing their bushes. The balance of \$218.84 represents the cost of the two state employees assigned to the project.

Table 17 summarizes the results of the special black currant elimination work conducted under the Regular Cooperative Program during the period 1918-1937, inclusive.

Table 17. Special Black Currant Elimination Work Under The Regular Cooperative Program in Northeastern States, 1918-1937, Inclusive.

State	No. Properties Inspected	No. Patches Ribes Located	No. Ribes Pulled			Total Man Days	Cost				
			Nigrum	Other Cult.	Total		Indiv.	State	B.P.I.	P.W.A.	Total
Mass.	393,305	4,494	32,115	-	32,115	5,552	2351.80	20,578.44	100.00	-	23,030.24
R.I.	110,137	1,917	16,219	1093	17,312	1,929	-	9,178.55	675.53	473.80	10,327.88
Conn.	56,960	2,713	354	18,696	19,050	1,533	-	2,509.33	3647.42	912.26	7,069.01
N.Y.	522,400	5,102	36,930	761	37,691	5,135	-	27,277.37	-	-	27,277.37
Totals	1,082,802	14,226	85,618	20,550	106,168	14,150	2351.80	59,541.69	4422.95	156.06	67,702.50

Basis of Costs:- Includes cost of laborers, scouts, and foremen while engaged in locating and destroying *Ribes nigrum* and other cultivated bushes as indicated - owners' labor figured at rate of 40 cents per hour.

Blister Rust Canker Elimination Work - Regular Cooperative Program

Blister rust canker elimination work under this program has been restricted to the 1932 project at Acadia National Park in Maine, and a few instances where individual owners in Maine and Vermont paid the entire costs of such work on their properties during 1932, 1933, and 1937. Most of the canker elimination work in this Region has been performed in connection with the Emergency programs.

During 1937, five land owners in Maine and Vermont expended \$220.70 for wages of laborers engaged in removing blister rust cankers from the white pines on their properties. These projects were supervised by the respective blister rust control leaders. Table 18 summarizes the results of the 1937 activities.

Table 18. Blister Rust Canker Elimination Work Conducted Under Regular Cooperative Program in Northeastern States During 1937.

State		Maine	Vermont	Totals
Est. No. Pines Examined		14,921	1,997	16,918
No. Fatally Inf. Pines Cut Down		768	47	815
No. Pines Treated For Infection		724	153	877
No. Cankers Removed	Branch	510	148	658
	Stem	214	14	228
Total Man Days		31	18	49
Total Cost (All by individuals)		150.00	70.70	220.70

Basis of Costs: - Includes wages of laborers and foremen, (employed by land owners) while engaged on blister rust canker elimination work.

Table 19. - Blister Rust Canker Elimination Work Conducted Under Regular Cooperative Program in Northeastern States, 1932-1937, Inclusive.

State		Maine	Vermont	Totals
Est. No. Pines Examined		94,467	1,997	96,464
No. Fatally Inf. Pines Cut Down		7,133	47	7,180
No. Pines Treated For Infection		12,143	153	12,296
No. Cankers Removed	Branch	16,667	148	16,815
	Stem	1,651	14	1,665
Total Man Days		460	18	478
Cost	Individuals	1,205.12	70.70	1,275.82
	National Park Service	321.04	-	321.04
	Total	1,526.16	70.70	1,596.86

Basis of Costs: - Includes wages of laborers and foremen (employed by land owners and National Park Service) while engaged on blister rust canker elimination work - cost of equipment purchased by National Park Service.

Table 19 includes the results of the 1932 work at Acadia National Park in Maine when 2,546 pines were examined and 319 fatally infected trees cut down. In addition, 1,480 branch cankers and 61 stem infections were removed from 715 other infected pines. This 1932 project at Acadia National Park required 100 man days labor and the total cost of the work was \$321.04 to the National Park Service. C.C.C. laborers were used on similar activities at Acadia National Park during the period 1933-1936, inclusive - See Table 34 for the results of this C.C.C. work.

In addition to the canker elimination work reported in Table 19, the ornamental pines on the state reservation at Saratoga, New York were examined by state employees for blister rust infection during 1933. The area contained 75 acres of plantations about 20 years old. There was also considerable natural white pine scattered over some 700 acres of woodlands. The pines had been previously pruned to a height of 6 feet which aided materially in inspecting them for infection. The work disclosed a total of 113 diseased trees, 49 of which had died from blister rust. These dead trees were cut down, and limb infections were also removed from 64 other pines. No time or cost figures are available for this work.

Pine and Control Area Mapping - Regular Cooperative Program

Pine and control area mapping is an essential part of blister rust control, especially in sections where the pine areas are scattered and where the Ribes eradication work is performed by crews composed of inexperienced men obtained from relief sources. Such maps assist the crew foremen in locating the boundaries of control areas, and consequently limit their activities to crew supervision.

During the period of experimental control work from 1918 to 1922, the white pine areas in Rhode Island, Connecticut and Vermont were roughly mapped, also a few sample townships were type mapped in Maine, New Hampshire and Massachusetts in order to develop methods and determine costs. The amount of mapping work was necessarily limited, as the field personnel was employed only during the Ribes eradication season. Funds were sufficient to employ only the state leaders on a yearly basis. Since 1922, a force of district leaders have also been employed full time. During the Ribes eradication season these men are engaged chiefly in supervising crew and scout activities and prior to the advent of the Emergency programs in 1933, their time during the fall, winter and early spring months was devoted mainly to informational and service activities to secure local cooperation in control activities during the following Ribes eradication season. Consequently, these leaders were unable to do much mapping. Also in large portions of Maine, New Hampshire, Massachusetts and New York the pine areas were so continuous that detailed pine mapping was not essential. Under such conditions, where town and state money was available, the eradication work was conducted on the basis of road block units irrespective of property lines. In New York, woodland maps were prepared for many of the counties chiefly by state men. Such maps showed, by symbols, the location of the white pine areas.

During recent years, the unprotected pine areas have been smaller and more scattered. Consequently, there has been a greater need for detailed pine and control area maps. The Emergency programs since 1933 have been of great assistance in providing men to do the necessary mapping. Similar activities were conducted under the Regular Cooperative Program during the period 1933-1936, inclusive, but all of the 1937 work was performed under the C.C.C. and W.P.A. Programs. The amount of pine and control area mapping accomplished under the Regular Cooperative Program since 1933 is indicated in Table 20, while the total results on this project under all programs are given in Table 106.

Table 20. - Pine and Control Area Mapping Under The Regular Cooperative Program in Northeastern States, 1933-1936, Inclusive.

State	Period Work Performed	Acreage Mapped	Acreage Examined But Not Mapped	Total Man Days	Total Cost (All State)
Maine	1933 and 1935	21,976	36,055	104	625.98
N.H.	1935	18,338	-	311	1,244.00
Conn.	1934	120	1,600	7	35.00
N.Y.	1934-1936	160,738	76,070	990	4,752.00
Totals	1933-1936	221,172	113,725	1,412	6,656.98

Table 21. - Total Expenditures, By Cooperating Agencies, Under The Regular Cooperative Program in Northeastern States During 1937.

State	State Funds	Towns	Individuals	Counties	B.E.&P.Q.	W.P.A.	Total
Maine	4,052.66	6,382.83	243.53	-	8,092.84	19.00	18,790.86
N.H.	5,083.85	13,893.04	45.95	-	7,815.81	-	26,838.65
Vt.	706.25	-	239.95	-	7,931.48	-	8,877.68
Mass.	2,907.78	-	3,342.40	-	7,385.05	-	13,635.23
R.I.	2,606.36	-	-	-	244.43	-	2,850.79
Conn.	2,533.20	-	-	-	4,422.35	-	6,955.55
N.Y.	14,976.49	-	358.76	734.25	10,154.64	-	26,224.13
N.J.	1,541.79	-	-	-	730.42	-	2,272.21
Penna.	9,380.13	-	9.20	-	6,114.25	-	15,503.58
Totals	43,788.51	20,275.87	4,239.78	734.25	52,891.27	19.00	121,948.68

Table 22. - Total Cooperative Expenditures, By Projects, Under Regular Cooperative Program in Northeastern States During 1937.

State	Supervision and BRC Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	10,404.03	7,390.60	846.23	-	-	-	150.00	-	-	18,790.86
N.H.	9,285.16	17,553.49	-	-	-	-	-	-	-	26,838.65
Vt.	8,637.73	169.25	-	-	-	-	70.70	-	-	8,877.68
Mass.	7,757.91	5,120.23	-	318.74	326.85	111.50	-	-	-	13,635.23
R.I.	2,850.79	-	-	-	-	-	-	-	-	2,850.79
Conn.	6,955.55	-	-	-	-	-	-	-	-	6,955.55
N.Y.	9,237.89	8,589.90	644.43	-	824.13	30.90	-	-	6,896.88	26,224.13
N.J.	2,272.21	-	-	-	-	-	-	-	-	2,272.21
Penna.	12,770.21	2,504.53	66.69	-	160.15	2.00	-	-	-	15,503.58
Totals	70,171.48	41,328.00	1,557.35	318.74	1,311.13	144.40	220.70	-	6,896.88	121,948.68

Table 23. - Total Expenditures, By Cooperating Agencies, Under Regular Cooperative Program in Northeastern States, 1918-1937, Inclusive.

State	State Funds	Towns	Individuals	Counties	P.W.A.	B.P.I.	B.E.&P.Q.	Forest Service	Park Service	WPA	Total
Maine	111,049.51	102,694.57	83,722.69	-	-	249,874.54	16,584.76	-	9,659.44	19.00	573,584.51
N.H.	282,449.67	388,811.44	47,609.71	-	-	434,415.50	16,444.41	1,946.91	-	-	1,171,677.64
Vt.	52,578.51	1,077.91	71,449.32	-	-	119,313.44	12,205.83	-	-	-	256,625.01
Mass.	285,221.97	1,699.22	91,637.94	-	-	323,305.88	16,355.71	-	-	-	718,218.72
R.I.	53,135.88	-	581.36	-	473.80	43,883.83	1,122.18	-	-	-	104,197.06
Conn.	122,812.60	12,187.89	8,383.69	-	912.26	101,725.56	10,169.41	-	-	-	256,191.41
N.Y.	963,726.66	-	139,678.60	8,634.49	-	479,769.34	15,040.52	-	-	-	1,636,849.61
N.J.	15,700.94	-	-	-	-	6,271.28	2,920.10	-	-	-	24,892.32
Penna.	88,750.72	-	1,795.48	-	-	31,619.21	12,579.89	779.77	-	-	135,525.01
Totals	1,980,426.46	506,471.03	474,858.79	8,634.49	1,386.06	1,790,176.63	103,422.91	2,726.68	9,659.44	19.00	4,877,761.34

Table 24. - Total Cooperative Expenditures, By Projects, Under Regular Cooperative Program in Northeastern States, 1918-1937, Inclusive.

State	Supervision and BRC Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	270,228.18	265,582.76	846.23	-	10,261.10	-	1,526.16	625.98	24,514.10	573,584.51
N.H.	427,904.45	662,900.26	32,188.46	-	430.99	550.60	-	1,244.00	46,408.88	1,171,677.64
Vt.	134,335.26	94,956.56	-	-	516.01	792.91	70.70	-	25,953.57	256,625.01
Mass.	500,288.24	328,113.42	-	23,028.24	3,447.60	14,525.10	-	-	48,316.12	718,218.72
R.I.	49,622.29	32,238.35	1,000.00	10,327.88	1,256.05	509.79	-	-	9,242.69	104,197.06
Conn.	121,845.36	76,265.58	475.06	7,069.01	4,768.26	103.50	-	35.00	45,629.62	256,191.41
N.Y.	429,184.76	793,516.51	87,547.01	27,277.37	13,821.75	5,555.94	-	4,752.00	275,194.27	1,636,849.61
N.J.	20,032.71	-	-	-	300.53	-	-	-	4,559.08	24,892.32
Penna.	74,876.22	43,751.12	2,430.10	-	3,579.49	153.00	-	-	10,735.14	135,525.01
Totals	1,828,317.47	2,297,324.56	124,456.86	67,702.50	36,431.80	22,190.84	1,556.86	6,656.98	491,053.47	4,877,761.34

BLISTER RUST CONTROL ACTIVITIES UNDER THE
C.C.C. CONTROL PROGRAM IN THE NORTHEASTERN STATES

The C.C.C. Program in the Northeastern States during the period 1933 to 1937, inclusive, has provided an excellent opportunity for extending the application of blister rust control measures to unprotected white pine areas of commercial and scenic importance. Prior control work on many of these areas had been prevented either by lack of cooperation or because the cost of eradicating the existing Ribes was excessive under ordinary conditions. The control project was especially adapted to the C.C.C. Program, since the Ribes eradication work required chiefly manual labor and only a small expenditure for equipment. The C.C.C. Program was the first of the various Emergency programs to furnish labor for employment on our project. The states welcomed this work at the beginning of the program not only for the contemplated protective results, but because it offered a means of giving immediate and effective employment, under regular trained supervision, to hundreds of C.C.C. men during the organization period when other projects for various reasons could not be put into action. During these first few weeks, blister rust control gave many of the enlisted men their first opportunity to become acquainted with the woods, to learn discipline, and to obtain an appreciation of a day's work. At the winter meeting of New England Section of the Society of American Foresters in 1934 Mr. Tillotson, in charge of the C.C.C. program in the Northeastern States, publicly remarked that he wished to commend the blister rust control organization for the way it handled its project in connection with the C.C.C. program. He mentioned that this control organization, being in effective operation at the start of the C.C.C. work, accomplished excellent results without delay or confusion.

The C.C.C. program has provided not only an opportunity for the employment of a large force of workers on Ribes eradication, but also permitted many men to be used on such control projects as pine and control area mapping, nursery sanitation, and blister rust canker elimination.

Allotment of Labor

No direct allotment of C.C.C. funds has been made for blister rust control projects in the Northeastern States. Prior to the start of control activities each year, the respective state blister rust control leaders and the C.C.C. officials have developed plans providing a definite number of man days of C.C.C. labor from certain camps for control activities. The regional leader has cooperated with the National Park and U. S. Forest officials in preparing similar plans for the C.C.C. projects at Acadia National Park in Maine, the White Mountain National Forest in New Hampshire and the Allegheny National Forest in Pennsylvania.

Responsibilities and Direction of Work

The field activities of the crews assigned to blister rust control work have been directed by C.C.C. technical foremen and checkers. In a few instances, experienced state paid foremen have been assigned to assist in directing the C.C.C. crews. The combined force was given technical supervision by the regular permanent state and district blister rust control leaders, except on federal lands where such technical supervision was supplied by the regional blister rust control office personnel. These leaders selected the areas to be protected, assisted in training the field men in proper methods of control, and checked the work to make sure desired results were accomplished.

During June to September 1933, three of the district blister rust control leaders in Maine and two in New York functioned as superintendents of C.C.C. camps devoted entirely to Ribes eradication work. None of the district leaders acted as camp superintendents after 1933. Due to various other emergency projects, since September, 1933, the blister rust control leaders have devoted approximately one fourth of their time to C.C.C. activities. In most instances, the technical foremen and checkers provided for the C.C.C. program in 1933 consisted of well qualified and experienced men recommended by the blister rust control supervisory force. Few personnel changes were made in the C.C.C. supervisory force prior to 1935. However, during the past three years, many changes occurred; and when new camps were established, politics frequently entered into the selection of such men. In spite of this condition, the results were generally satisfactory, due in a large part to the effective efforts of the district leaders.

Section of Areas to Be Protected

The areas selected for control work by the C.C.C. personnel were in most cases within a radius of 20 miles of the respective camps, preference being given to areas requiring initial protection. Control work in Massachusetts was limited to publicly-owned lands. It was also restricted to such lands in New York during 1933, and in Pennsylvania from 1933-1935, inclusive. With these exceptions, Ribes eradication work under the C.C.C. Program in the Northeastern Region has been performed on both public and private lands, about 90% of the total area covered being in private ownership.

Distribution of Work and Personnel Employed

Ribes eradication work was conducted during 1933 from a total of 114 C.C.C. camps in the Northeastern States (Table 25). Five of these camps were located in the White Mountain National Forest, one in the Green Mountain National Forest, two at Acadia National Park, and the other 106 were state camps scattered over the forest region of New England, New York, and Pennsylvania. Control work from some of the Pennsylvania camps was started on May 22, 1933, but in the other states most of the camps were not in a position to do field work until the latter part of June. The number of enlisted men employed on control work necessarily varied from day to day, the maximum number of men at any one time during 1933 being 3,294. Three of the Maine camps and two in New York were devoted entirely to Ribes eradication work from June to September, 1933. The number of enlisted men assigned to blister rust control work at each of the other 109 camps ranged from an average of 6 to 100. The field activities of these men were directed by 204 C.C.C. technical foremen and checkers and 36 state foremen.

During 1934, Ribes eradication work was conducted from a total of 125 C.C.C. camps in all of the Northeastern States (Table 25). Four of these camps were located on the White Mountain National Forest, two at Acadia National Park, and two at the Allegheny National Forest. The maximum number of enlisted men assigned to blister rust work from these 125 camps at any one time was 2,483. Four of the New York camps were devoted chiefly to Ribes eradication work from May to September, and two other New York camps had 67 and 76 men, respectively, assigned to control work during this period. In Maine, an average of 86 men worked out of one camp and 57 out of another. The number of enlisted men assigned to blister rust control from each of the other 117 camps ranged from an average of 5 to 43 men per day. The field activities of these laborers were supervised by 287 C.C.C. technical foremen and checkers.

Table 25 - Distribution of Work and Personnel Employed on C.C.C. Ribes Eradication Projects
in Northeastern States, 1933-1937, Inclusive.

State	No. C.C.C. Camps Where Control Work Performed					No. Towns Where Control Work Performed					Average Number of Enlisted Men Employed*					Number of Technical Foremen & Checkers				
	1933	1934	1935	1936	1937	1933	1934	1935	1936	1937	1933	1934	1935	1936	1937	1933	1934	1935	1936	1937
Maine	State	4	4	4	3	7	11	10	13	9	310	239	452	384	123	38	31	40	27	18
	Acadia Park	2	2	2	1	6	5	2	2	1	79	53	57	36	29	9	4	4	2	1
	Total	6	6	6	4	13	16	12	15	10	389	292	509	420	152	47	35	44	29	19
N. H.	State	5	5	6	8	23	16	27	18	10	342	150	154	151	69	34	17	13	13	9
	W. Mt. N.F.	4	3	2	-	10	3	4	-	-	55	44	47	-	-	8	3	3	-	-
	Total	9	8	8	8	33	19	31	18	10	397	174	201	151	69	42	20	16	13	9
Vermont	State	7	6	3	5	17	14	4	6	9	187	147	97	84	101	15	9	4	4	8
	F. es.	12	9	10	10	17	15	25	14	4	99	112	141	134	29	8	9	11	8	2
	R. I.	3	2	6	4	3	2	8	6	5	28	62	237	92	84	4	5	12	4	5
Conn.	State	7	8	10	7	19	15	40	10	12	104	161	182	115	106	12	13	15	9	9
	N. Y.	8	29	23	38	19	75	64	125	58	441	1023	823	1280	902	67	121	71	94	73
	N. J.	-	1	-	-	-	1	-	-	-	-	5	-	-	-	-	-	-	-	-
Penn.	State	62	54	69	59	62	59	109	140	91	347	784	1142	878	987	45	73	89	80	62
	Allegheny NF	-	2	3	3	-	2	4	3	-	-	26	41	47	-	-	2	3	1	-
	Total	62	56	72	62	62	61	113	143	91	347	810	1183	925	987	45	75	92	81	62
All States	State	108	118	131	135	167	208	287	332	198	1898	2663	3228	3118	2401	223	278	255	239	186
	Nat. Park	2	2	2	2	6	5	2	2	1	79	53	57	36	29	9	4	4	2	1
	Nat. Forests	4	5	5	3	10	5	8	3	-	55	70	88	47	-	8	5	6	1	-
	Total	114	125	138	140	183	218	297	337	199	2032	2786	3373	3201	2430	240	287	265	242	187

*Based on average number of men employed during period of work.

The number of C.C.C. men available for blister rust control work during 1935 and 1936 was increased somewhat over the number employed during the first two years of the program. In New York, a few camps continued to confine their work chiefly to Ribes eradication during the period May to September of each year. All states, except New Jersey, conducted work under the C.C.C. Program during 1935 and 1936. Table 25 shows the distribution of the work and the personnel employed. The number of enlisted men assigned to the project from each camp ranged from 6 to 130 in 1935 and from an average of 2 to 122 during 1936.

The closing of a number of C.C.C. camps during 1937 resulted in a corresponding decrease in the blister rust control projects. As indicated in Table 25, C.C.C. labor was obtained from 107 camps during 1937 as compared with 140 the preceding year, while the average number of enlisted men employed dropped from 3,201 in 1936 to 2,430 during the 1937 season. The average number of laborers assigned to the project in each camp ranged from 5 to 122. Work was performed in all states, except New Jersey, but no projects were conducted on the White Mountain and Allegheny National Forests during 1937.

Basis For Personnel Costs and Hours of Work

It is impossible to give accurate cost figures for the enlisted personnel under the C.C.C. Program. In compiling such cost data for this report, the wages of the enlisted men were figured at the rate of \$1.00 per day plus an arbitrary charge for subsistence. Such expenses were computed at the rate of 35 cents per man day in 1933, 40 cents in 1934, and 50 cents for the period 1935 to 1937, inclusive. Accurate data were available for the wages and expenses of the technical foremen and checkers, and any state foremen assigned to the C.C.C. work. The former have been paid monthly salaries ranging from \$100. to \$167.50 per month, the majority of them receiving from \$130.00 to \$140.00.

In computing the cost of the C.C.C. enlisted mens' time, their total time (8 hours per day) has been charged. This includes time spent traveling to and from work and the lunch hour. During the early months of the program, lack of transportation and the practice of requiring crews to report back to camp for the noon meal materially reduced the actual working time of the men and caused a physical reaction to the personnel that was not favorable to productive results. These difficulties were overcome when the camps were supplied with adequate transportation facilities and a regulation was issued in 1934 requiring each enlisted man to perform 30 hours of actual field work per week.

Transportation

Adequate transportation facilities have been available for the C.C.C. work, except during the first few months of the program. Trained drivers have been assigned to each truck, and safety regulations enforced. In this report, where actual transportation costs were not available for the C.C.C. projects, such costs were estimated either on the basis of \$40.00 per month for each truck plus 3 cents per mile for operating costs or at the rate of 12 cents per mile for each mile the truck was used on the project.

Accomplishments in Various Blister Rust Control Projects Under C.C.C. Program in Northeastern States

Ribes Eradication Work During 1937

C.C.C. personnel was used on Ribes eradication work during 1937 in all of the Northeastern States, except New Jersey. An average of 2,430 enlisted men from 107 C.C.C. camps were assigned to control projects conducted in 199 townships. Such

activities started as early as possible in May in all of the states, except Pennsylvania where a small amount of work was performed during April. The projects terminated at the end of September in New Hampshire, Vermont, Connecticut and New York; but work was continued in a few camps in Maine, Rhode Island and Pennsylvania during the first part of October. In Massachusetts, the C.C.C. activities were limited to the period May 24 to August 31.

A total of 284,741 acres was cleared of 6,509,237 wild Ribes and 11,154 cultivated bushes as a result of 136,373 man days labor by the C.C.C. crews during 1937. Of this total, 152,782 acres was initial control work. The total acreage examined for Ribes under the C.C.C. Program represents 39.7% of all the 1937 control work in this Region.

As previously mentioned, it is impossible to give accurate cost figures for the work under the C.C.C. Program, except for the technical foremen and checkers and any crew foremen furnished by the states. The estimated cost of the 1937 C.C.C. Ribes eradication work, exclusive of supervision, amounted to \$231,026.19, or \$.811 per acre. The basis used in computing the C.C.C. costs is shown under Table 26. The per acre values as indicated in Tables 26 to 28 and in the graphs on pages 45 and 46 show that the cost of the 1937 C.C.C. work as well as for previous years were considerably higher than the average cost of eradicating Ribes in connection with the regular work. This can be attributed in part to the following causes:

(1) The district blister rust control leaders' activities in connection with the C.C.C. Program have been limited to technical supervision. They instructed the C.C.C. personnel as to where and how to do the necessary control work and performed sufficient administrative checking to make sure the desired results were obtained. However, lack of full authority over the field men was a severe handicap in many instances. The amount and quality of the supervision provided by the C.C.C. technical foremen was also inadequate in some cases.

(2) The sites selected for the C.C.C. work usually represented difficulty factors above average. The number of Ribes eradicated per acre on the C.C.C. work has averaged about three times as many as on the work performed during previous years under the Regular Cooperative Program.

(3) Practically all of the total acreage has been worked by crews in strip formation. In many instances, the areas undoubtedly could have been worked by the scout method and the per acre costs materially reduced, but experienced men were not available. The enlisted personnel consisted chiefly of men from the cities with little or no experience in manual labor or woods work. The necessity of emphasizing the fundamentals of Ribes eradication work to a changing and inexperienced personnel frequently prevented refinements in crew methods to eliminate lost motion and to increase crew flexibility under varying field conditions.

(4) The total time of the C.C.C. enlisted men (eight hours per man day) has been charged in computing the cost of the eradication work. This includes time consumed in traveling to and from work and the lunch hour. Consequently, only about six hours of actual field work was performed per day on the C.C.C. projects as compared with eight hours for similar work under the Regular Cooperative and other emergency programs. This difference of 25% in productive time should be considered in comparing the costs of the C.C.C. work with that of similar activities conducted under other programs.

A comparison of the per acre values for the 1937 Ribes eradication work under the C.C.C. Program in the different states, as indicated by Table 26, shows considerable variation. The average number of man days required per acre is, of course, dependent on many factors: such as the number, size and distribution of the Ribes; density of undergrowth; topography; and the experience, ability and efficiency of the personnel. The relatively low per acre man day figures for Rhode Island and Connecticut are due primarily to the small number and size of the Ribes in these two states; whereas, in Pennsylvania, numerous large bushes are found in most of the control areas, many of which comprise small scattered pine lots in remote, wooded, hilly areas. In the other Northeastern States, the C.C.C. work has been restricted chiefly to areas with heavy Ribes concentrations, as indicated by the per acre values for the 1937 initial control work in Maine, New Hampshire, and Massachusetts.

No satisfactory comparison can be made between the per acre values for the 1937 initial and re-eradication work given in Table 26 because the same areas are not involved. In New York, the man day average for the re-eradication work is considerably higher than for the initial work in spite of the fact that the average number of Ribes per acre were approximately the same for both classes of control work. Apparently, the number of Ribes per acre was not the major factor influencing time and cost on the C.C.C. work in New York. This is also indicated by the per acre values for the Pennsylvania control activities.

Table 26 summarizes the 1937 C.C.C. Ribes eradication work by states and classes of work.

Ribes Eradication Work - 1933 to 1937, Inclusive

Tables 27 and 28 summarize the results of the C.C.C. Ribes eradication work by states, years, and classes of work during the period 1933-1937, inclusive. The total acreage cleared of Ribes (1,968,176 acres) under the C.C.C. Program represents 39.4% of all the control work performed in the Northeastern States. It will be noted in Table 28 and the graph on page 46 that the average man days per acre for all the C.C.C. work decreased slightly each year from 1933-1936, inclusive, but increased during 1937. With the exception of 1934, decreases also occurred in the average number of Ribes per acre. The average cost per acre decreased in 1934 and 1935 in spite of the increased charge for subsistence expenses.

Numerous inspections of the C.C.C. work show that, on the whole, the quality of the Ribes eradication work in the Region was satisfactory. The supervisory officials acquitted themselves commendably in all respects, and the enlisted men in most cases gave the job their best efforts during the time they spent in the field. The project has not only resulted in the protection of hundreds of thousands of acres of valuable pine, but has helped to rehabilitate thousands of young men, many of whom were greatly in need of assistance.

Table 26 - Ribes Eradication Work Performed Under C.C.C. Program in
Northeastern States During 1937.

(Excludes nursery sanitation and cultivated black currant elimination)

State	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Cost		Per Acre			
		Total Worked	Pine Protected	Wild	Cult.		State	C.C.C.	Total	Cost	Ribes	Man Days
Maine	Initial	6,585	2,818	525,628	74	4,996	-	\$8,630.69	\$8,630.69	1.31	49.4	.76
	Re-Erad.	35,309	11,514	729,780	258	7,436	-	13,185.25	13,185.25	.373	20.7	.21
	Total	41,894	14,332	1,055,408	332	12,432	-	21,815.94	21,815.94	.521	25.2	.30
N.H.	Initial	2,916	1,250	259,644	-	2,524	-	4,262.38	4,262.38	1.46	88.7	.87
	Re-Erad.	5,227	2,505	84,867	-	2,282	-	3,850.69	3,850.69	.737	16.2	.44
	Total	8,143	3,755	345,511	-	4,809	-	8,113.07	8,113.07	.996	42.2	.59
Vt.	Initial	12,921	2,864	351,452	480	5,342	-	9,151.52	9,151.52	.708	27.2	.41
	Re-Erad.	5,345	979	85,168	6	1,354	-	2,318.58	2,318.58	.434	15.6	.26
	Total	18,266	3,843	434,620	486	6,696	-	11,470.10	11,470.10	.628	23.8	.37
Mass.	Initial	500	152	75,673	-	576	-	630.72	630.72	1.26	151.3	.73
	Re-Erad.	2,779	543	5,651	-	243	-	405.91	405.91	.146	2.0	.09
	Total	3,279	695	81,324	-	619	-	1,036.63	1,036.63	.316	24.8	.19
R.I.	Initial	7,239	2,413	6,856	297	2,113	-	3,483.70	3,483.70	.481	0.9	.29
	Re-Erad.	28,116	9,372	32,683	214	5,718	-	9,484.70	9,484.70	.537	1.2	.20
	Total	35,355	11,785	39,539	511	7,831	-	12,968.40	12,968.40	.567	1.1	.22
Conn.	Initial	3,663	517	11,053	247	842	-	1,351.55	1,351.55	.369	3.0	.23
	Re-Erad.	22,014	4,270	134,341	208	5,776	-	9,178.75	9,178.75	.417	6.1	.26
	Total	25,677	4,787	145,394	455	6,618	-	10,530.30	10,530.30	.410	5.7	.26
N.Y.	Initial	77,034	51,356	2,356,316	2,268	38,598	392.85	67,342.90	67,735.75	.879	30.6	.50
	Re-Erad.	11,969	7,978	358,056	71	8,694	92.15	15,257.18	15,349.33	1.28	29.9	.73
	Total	89,003	59,334	2,714,372	2,339	47,292	485.00	82,600.08	83,085.08	.934	30.5	.53
Penn.	Initial	41,924	7,453	1,490,466	6,671	33,898	-	56,254.01	56,254.01	1.34	35.6	.81
	Re-Erad.	21,200	4,499	204,603	360	16,178	-	25,752.66	25,752.66	1.21	9.7	.76
	Total	63,124	11,952	1,695,069	7,031	50,076	-	82,006.67	82,006.67	1.30	26.9	.79
Totals	Initial	152,782	68,823	4,876,088	10,037	88,692	392.85	151,107.47	151,500.32	.992	31.9	.58
	Re-Erad.	131,959	41,660	1,633,149	1,117	47,681	92.15	79,433.72	79,525.87	.603	12.4	.36
	Total	284,741	110,483	6,509,237	11,154	136,373	\$485.00	\$230,541.19	\$231,026.19	.811	22.9	.48

Basis of costs: - Includes wages of enlisted men figured at \$1.00 per eight hour day plus an arbitrary charge of

50 cents per day for subsistence - cost of crew transportation figured on basis of \$40. per month for each truck plus 3 cents per mile for operating costs or at rate of 12 cents per mile for each mile the truck was used on the project - and miscellaneous expenses for trail paper, picks, etc.

Table 27 Ribes Eradication Work Performed Under C.C.C. Program in
Northeastern States During Period 1933-1937, Inclusive.

(Excludes nursery sanitation and cultivated Ribes nigrum elimination)

By States

State	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost		Per Acre		
			Wild	Cult.		State	C.C.C.	Total	Cost	Ribes
Maine	Initial	195,156	7,459,356	7,397	79,936	-	\$126,774.72	\$126,774.72	.650	38.2
	Re-Erad.	155,891	2,290,525	2,291	33,959	155.00	56,009.13	56,144.13	.360	14.7
	Total	351,047	9,749,881	9,688	113,875	155.00	182,783.85	182,918.85	.521	27.8
N.H.	Initial	81,439	5,920,062	373	47,182	81.80	74,403.60	74,485.40	.916	72.7
	Re-Erad.	39,357	1,572,021	-	15,439	62.20	24,694.95	24,757.15	.629	40.0
	Total	120,776	7,492,083	373	62,621	144.00	99,098.55	99,242.55	.822	62.0
Vt.	Initial	48,032	2,582,546	747	23,288	-	37,720.52	37,720.52	.785	53.8
	Re-Erad.	24,201	477,355	94	11,476	-	18,133.44	18,133.44	.749	19.7
	Total	72,233	3,059,901	841	34,764	-	55,853.96	55,853.96	.773	42.4
Mass.	Initial	34,937	1,003,642	2,683	15,613	-	23,615.47	23,615.47	.676	28.9
	Re-Erad.	20,083	300,160	614	9,261	-	14,011.72	14,011.72	.698	14.9
	Total	55,020	1,303,802	3,297	24,874	-	37,627.19	37,627.19	.684	23.8
R.I.	Initial	33,576	20,516	617	6,758	-	10,735.04	10,735.04	.320	0.6
	Re-Erad.	191,806	199,261	5,793	36,387	15.00	57,541.69	57,556.69	.300	1.0
	Total	225,382	219,777	6,400	43,145	15.00	68,276.73	68,291.73	.303	1.0
Conn.	Initial	94,749	439,492	4,772	11,816	-	20,433.07	20,433.07	.216	4.6
	Re-Erad.	146,980	1,734,424	2,945	40,929	-	69,104.98	69,104.98	.470	11.8
	Total	241,729	2,173,916	7,717	52,745	-	89,538.05	89,538.05	.371	9.0
N.Y.	Initial	491,661	15,694,675	28,290	220,301	19,884.05	351,433.54	371,317.59	.755	31.9
	Re-Erad.	143,807	3,149,911	1,080	72,315	4,864.84	114,007.79	118,872.63	.827	21.9
	Total	635,468	18,844,586	29,370	292,616	24,748.89	465,441.33	490,190.22	.771	29.7
N.J.	Initial	381	19,795	304	247	-	346.50	346.50	.909	52.0
	Re-Erad.	-	-	-	-	-	-	-	-	-
	Total	381	19,795	304	247	-	346.50	346.50	.909	52.0
Penn.	Initial	165,868	10,723,373	20,426	157,430	-	249,016.42	249,016.42	1.50	64.7
	Re-Erad.	100,272	2,712,574	1,820	91,133	360.00	139,352.14	139,712.14	1.39	27.1
	Total	266,140	13,435,947	22,246	248,563	360.00	388,368.56	388,728.56	1.46	50.5
Totals	Initial	1,145,799	43,869,457	65,609	652,571	19,965.25	894,528.88	914,494.73	.798	38.3
	Re-Erad.	822,377	12,436,331	14,627	310,879	5,437.04	492,855.84	498,292.88	.606	15.1
	Total	1,968,176	56,304,693	80,236	963,450	25,402.29	1,387,384.72	1,412,787.61	.718	28.6

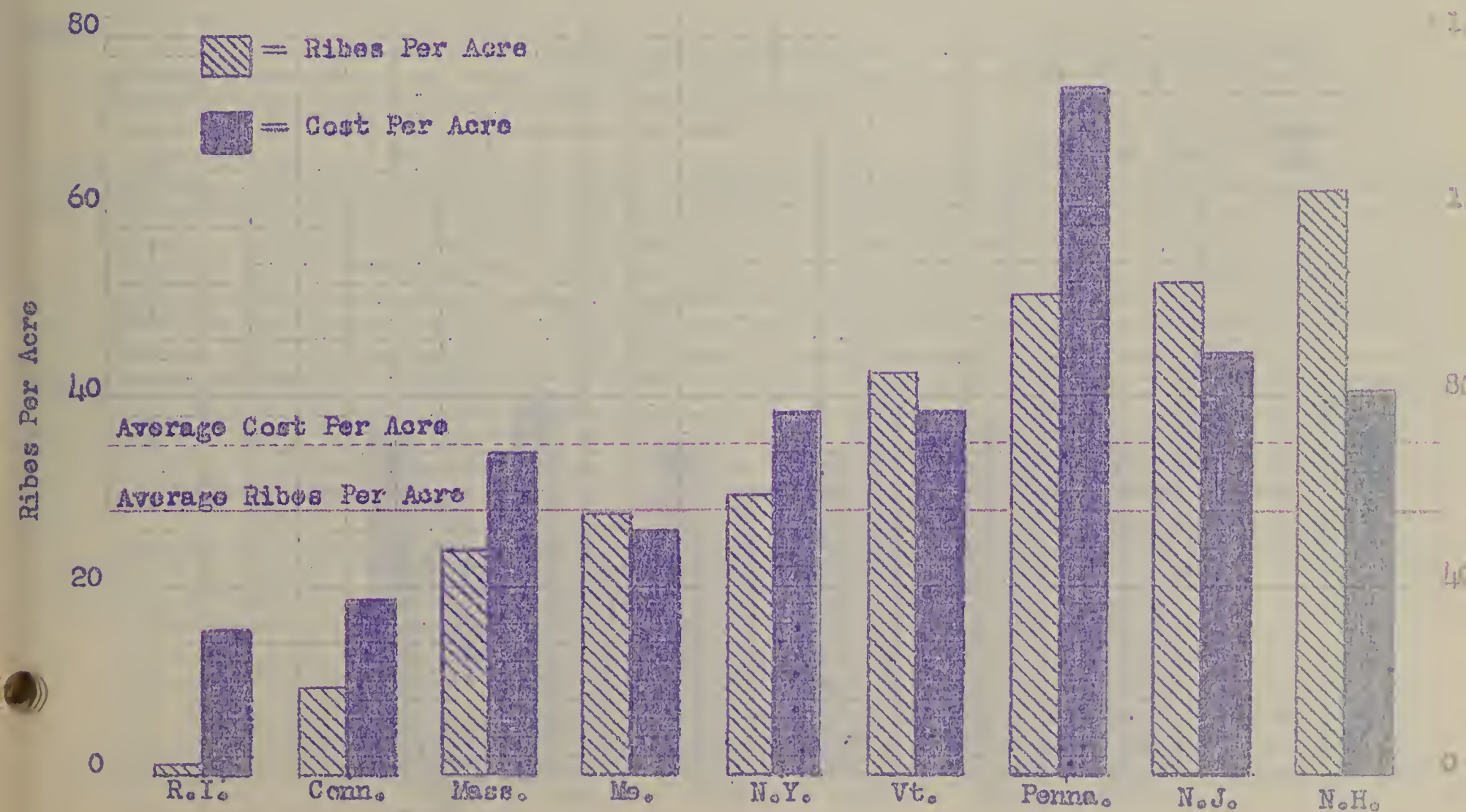
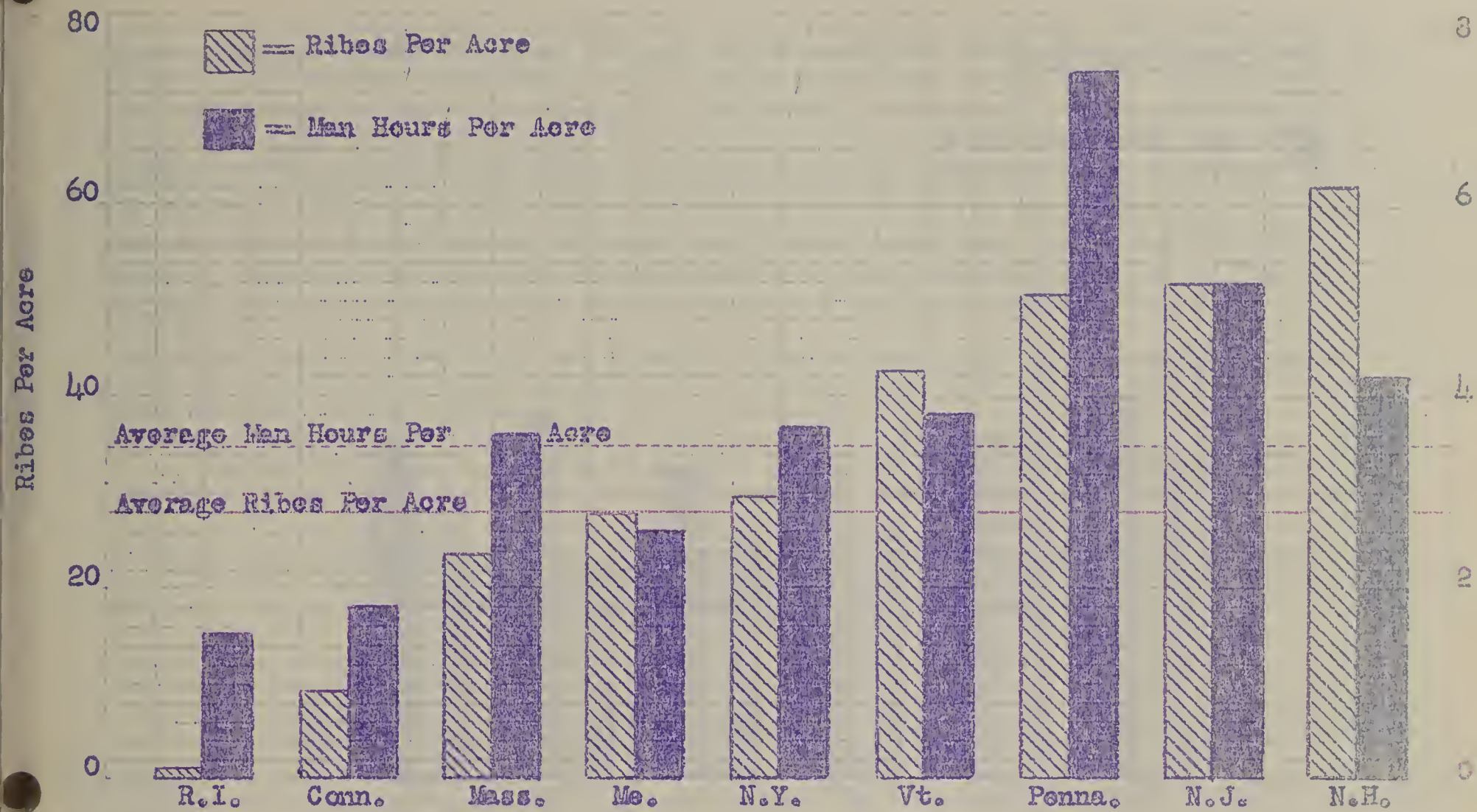
Table 28 - Ribes Eradication Work Performed Under C.C.C. Program
in Northeastern States During Period 1933-1937, Inclusive
(Excludes nursery sanitation and cultivated black currant elimination)

By Years

Year	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost		Per Acre	
			Wild	Cult.		State	C.C.C.	Cost	Ribes
1933	Initial	125,328	5,534,682	4,674	65,658	-	93,309.68	98,309.68	44.6
	Re-Erad.	119,990	2,626,432	453	56,962	-	83,832.68	83,832.68	21.9
	Total	245,318	8,211,114	5,127	122,620	-	182,142.36	182,142.36	33.6
1934	Initial	240,433	11,254,398	8,205	106,932	2,269.80	168,122.47	170,392.27	46.8
	Re-Erad.	133,527	2,392,151	939	61,266	840.20	95,594.89	96,235.09	17.9
	Total	373,960	13,646,549	9,144	168,198	3,110.00	263,517.36	266,627.36	36.5
1935	Initial	333,431	11,418,110	22,185	154,909	11,709.21	234,977.46	246,686.67	34.2
	Re-Erad.	175,898	2,528,305	5,663	65,752	2,330.62	101,515.03	103,845.65	14.4
	Total	509,329	13,946,415	27,848	220,661	14,039.83	336,492.49	350,532.32	27.4
1936	Initial	293,825	10,735,179	20,508	146,380	5,593.99	242,011.80	247,605.79	36.5
	Re-Erad.	261,003	3,256,194	6,456	79,218	2,174.07	132,679.52	134,853.59	12.5
	Total	554,828	13,991,373	26,963	225,598	7,768.06	374,691.32	382,459.38	25.2
1937	Initial	152,782	4,876,088	10,037	88,692	392.85	151,107.47	151,500.32	31.9
	Re-Erad.	131,959	1,633,149	1,117	47,681	92.15	79,433.72	79,525.87	12.4
	Total	284,741	6,509,237	11,154	136,373	485.00	230,541.19	231,026.19	22.9
Totals	Initial	1,145,799	43,868,457	65,609	562,571	19,965.85	894,528.88	914,494.73	38.3
	Re-Erad.	822,377	12,436,231	14,627	310,879	5,437.04	492,855.84	498,292.88	15.1
	Total	1,968,176	56,304,688	80,236	873,450	25,402.89	1,387,384.72	1,412,787.61	28.6

Basis of costs: - See Page 39.

COMPARISON BY STATES OF PER ACRE VALUES FOR RIBES ERADICATION WORK
UNDER C.C.C. PROGRAM IN NORTHEASTERN STATES - 1933-1937, INCLUSIVE.



COMPARISON BY YEARS OF PER ACRE VALUES FOR RIBES ERADICATION WORK
UNDER C.C.C. PROGRAM - NORTHEASTERN STATES - 1933-1937, INCLUSIVE.

80



= Ribes Per Acre



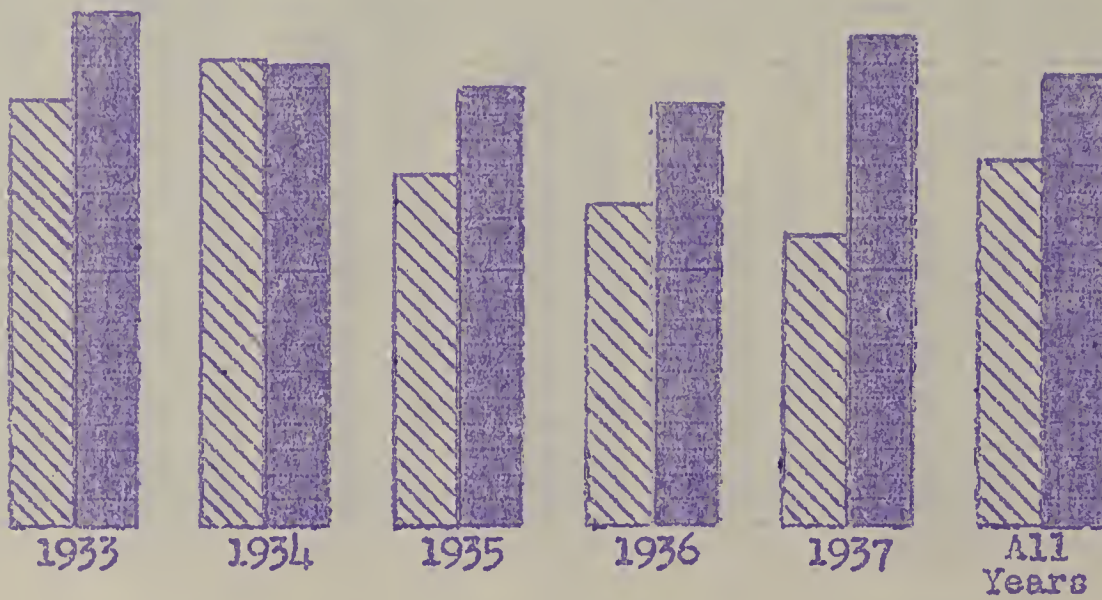
= Men Hours Per Acre

60

40

20

0



8

6

4

2

0

Men Hours Per Acre

80



= Ribes Per Acre



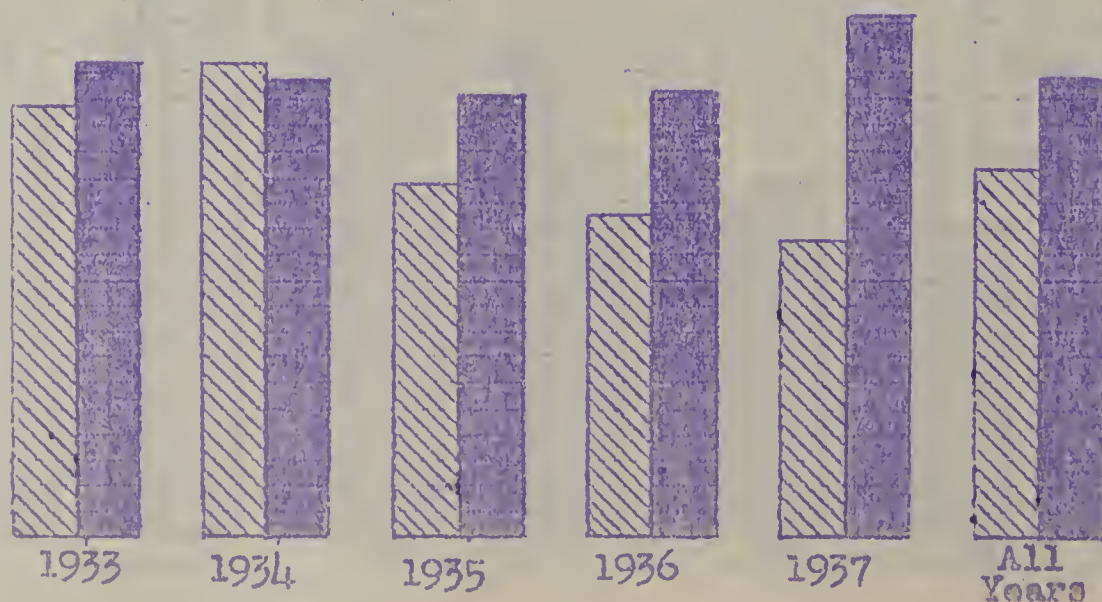
= Cost Per Acre

60

40

20

0



1.60

1.20

80

40

0

Cost Per Acre

Ribes Eradication Work on National Forests and Parks Under C.C.C. Program

C.C.C. crews have been assigned to blister rust control work on the white pines areas at Acadia National Park in Maine each year since the inauguration of the program in 1933. Similar projects were conducted on the White Mountain National Forest in New Hampshire from 1933-1935, inclusive, and on the Allegheny National Forest in Pennsylvania during 1934, 1935, and 1936. The initial control project is practically completed at Acadia National Park and over one third of the area has been reworked. With the exception of recent acquisitions, all white pine areas on the White Mountain National Forest have been given initial protection. Most of the initial control work has been completed on the Allegheny National Forest and several of the areas have been re-examined.

Plans have been made to continue the C.C.C. control projects on federal lands in this Region during 1938 when many of the areas will be reworked.

Table 29 shows the results of the Ribes eradication work on National Forests and Parks during 1937 and the totals for the period 1933 to 1937, inclusive.

Table 29 - Ribes Eradication Work Performed on National Forests and Parks Under C.C.C. Program in Northeastern States.

1937

Project	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Total Cost (All C.C.C.)	Per Acre		
			Wild	Cult.			Cost	Ribes	Man Days
Acadia	Initial	189	7,823	-	200	\$368.03	1.95	41.4	1.05
National	Re-Erad.	913	398	-	380	699.17	.768	0.4	.42
Park, Me.	Total	1,102	8,221	-	580	\$1,067.20	.988	7.5	.55

1933-1937, Inclusive

Project	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Total Cost (All CCC)	Per Acre		
			Wild	Cult.			Cost	Ribes	Man Days
Acadia	Initial	11,908	362,087	293	7,976	\$12,536.52	1.95	30.4	.67
National	Re-Erad.	8,794	33,204	-	3,398	5,640.89	.641	3.8	.39
Park, Me.	Total	20,700	395,291	293	11,372	18,177.41	.878	19.1	.55
White Mt.	Initial	1,170	625,295	-	2,237	3,231.25	2.76	534.4	1.91
National	Re-Erad.	3,245	269,089	-	1,478	2,337.41	.720	82.9	.46
Forest, NH	Total	4,415	894,384	-	3,715	5,568.66	1.26	202.6	.84
Allegheny	Initial	3,267	630,366	22	2,046	3,166.92	.969	192.9	.63
National	Re-Erad.	526	41,068	-	435	646.41	1.23	78.2	.83
Forest, Pa.	Total	3,792	671,424	22	2,480	3,813.33	1.01	177.1	.65
Totals	Initial	16,343	1,617,738	315	12,258	18,934.69	1.16	99.0	.75
	Re-Erad.	12,564	343,361	-	5,309	8,624.71	.686	27.3	.42
	Total	28,907	1,961,099	315	17,567	\$27,559.40	.953	67.8	.61

Basis of Costs: - See Page 39.

These data are included in Tables 26 to 28, inclusive.

The high per acre cost of the CCC work on the White Mountain National Forest was due chiefly to heavy concentrations of Ribes glandulosum, especially on the experimental tract at Bartlett, N.H. where a special effort was made to obtain as near 100% efficiency as possible.

Table 30 - Supervision of Ribes Eradication Work Under C.C.C. Program in Northeastern States During 1937.

State	No. Technical Foremen and Checkers	Man Days Worked by Technical Foremen and Checkers	Cost			
			State	W.P.A.	E.C.W.	Total
Maine	19	1,078	-	-	\$5,632.78	\$5,632.78
N.H.	9	440	-	-	2,830.13	2,830.13
Vt.	8	717	-	-	3,573.95	3,573.95
Mass.	2	19	-	-	118.22	118.22
R.I.	5	606	-	-	3,723.30	3,723.30
Conn.	9	1,208	632.00	-	5,410.90	6,042.90
N.Y.	73	4,812	6,284.16	90.24	17,328.83	23,703.23
Penna.	62	3,273	-	-	21,715.33	21,715.33
Totals	187	12,153	\$3,916.16	\$90.24	\$80,333.44	\$87,339.84

The cost of the technical foremen and checkers employed on Ribes eradication work under the C.C.C. Program are not charged against the project "Ribes Eradication". Their costs, while engaged on blister rust control work, were charged to the project "Eradication Assistants and Checkers". In most instances, the technical foremen directed the work of from three to five C.C.C. crews of six men each.

Nursery Sanitation - C.C.C. Program

Special nursery sanitation work was conducted under the C.C.C. Program during 1937 in Maine, Rhode Island, Connecticut, and Pennsylvania. The environs of seven nurseries were re-examined for Ribes during the early part of the spring. A total of 3,359 wild Ribes were removed from the 2,316 acres examined as a result of 717 man days labor by the C.C.C. personnel. The total cost of this sanitation work was \$1,174.51, or 50.7 cents per acre.

Table 31 shows the results of the nursery sanitation work, by states, for the calendar year 1937 and the totals for the period 1933-1937, inclusive.

Table 31 - Summary of Nursery Sanitation Work Under C.C.C. Program in Northeastern States During 1937.

State	Type of Erad.	No. Nurseries Worked	Acreage Worked	Ribes Pulled		Total Man Days	Total Cost (All C.C.C.)	Per Acre		
				Wild	Cult.			Cost	Ribes	Man Days
Maine	Re-Erad.	1	222	0	0	15	\$24.17	.109	-	.07
R.I.	Re-Erad.	3	1,055	2	0	11	48.84	.046	0.001	.01
Conn.	Re-Erad.	1	358	655	0	120	185.00	.520	1.8	.34
Penna.	Re-Erad.	2	683	2,702	0	571	916.50	1.34	4.0	.84
Totals	Re-Erad.	7	2,316	3,359	0	717	\$1,174.51	.507	1.5	.31

Table 32 - Summary of Nursery Sanitation Work Under C.C.C. Program
in Northeastern States 1933-1937, Inclusive.

State	Type of Erad.	Total Acreage Worked	Ribes Pulled		Total Man Days	Cost			Per Acre		
			Wild	Cult.		State	C.C.C.	Total	Cost	Ribes	Man Days
Maine	Re-Erad.	469	7	-	58	-	\$93.00	\$ 93.00	.198	0.01	.12
Vt.	Re-Erad.	700	1,500	-	174	417.90	108.00	525.90	.751	2.1	.25
R.I.	Re-Erad.	3,508	23	10	48	-	151.13	151.13	.043	0.007	.01
Conn.	Initial	280	252	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	1,779	3,589	4	635	-	1,137.68	1,137.68	.640	2.0	.36
	Total	2,059	3,821	51	668	-	1,202.96	1,202.96	.584	1.9	.32
N.Y.	Re-Erad.	630	17,750	-	182	318.40	255.50	573.90	.911	28.2	.29
Penna.	Re-Erad.	1,781	19,645	-	1,556	-	2,381.29	2,381.29	1.34	11.0	.87
Totals	Initial	280	252	47	33	-	65.28	65.28	.233	0.8	.12
	Re-Erad.	8,867	42,514	14	2,651	736.30	4,126.60	4,862.90	.548	4.8	.30
	Total	9,147	42,746	61	2,684	\$736.30	\$4,191.88	4,928.18	.539	4.7	.29

Blister Rust Canker Elimination Work - C.C.C. Program

Blister rust canker elimination work under the C.C.C. Program during 1937 was restricted to Pennsylvania. An average of 19 C.C.C. employees were used for 336 man days at various intervals during the period January 4 to May 7, 1934 cutting out blister rust infections on state plantations in two townships. A total of 106,502 white pines were examined and 720 fatally infected trees cut down. In addition, 6,019 branch and 67 stem cankers were removed from 1,406 other diseased pines. The total cost of this C.C.C. project was \$623.76.

Table 33 - Blister Rust Canker Elimination Work Under C.C.C. Program
in Northeastern States During Period 1933-1937, Inclusive.

State	Year	Est. Number Pines Examined	No. Fatally Infected Pines Cut Down	No. Infected Pines From Which Cankers Removed	No. Cankers Removed		Total Man Days	Total Cost (All CCC)
					Branch	Stem		
Maine (Acadia National Park)	1933	10,000	849	1,951	6,045	286	409	\$ 920.48
	1934	23,625	146	581	1,675	66	159	316.05
	1935	3,000	325	1,737	7,802	671	352	552.30
	1936	16,100	1,341	3,192	8,983	1,436	1,000	1,500.00
	Totals	52,725	2,660	7,461	24,505	2,459	1,920	3,291.01
Penna.	1934	42,566	3,012	9,537	176,874	-	807	1,386.00
	1935	207,848	16,435	40,731	180,788	-	1,892	3,307.02
	1936	210,102	9,141	24,374	94,774	-	1,529	2,887.51
	1937	106,502	720	1,406	6,019	67	336	623.76
	Totals	567,018	28,308	76,048	458,455	67	4,564	8,203.09
Totals	1933	10,000	849	1,951	6,045	286	409	920.48
	1934	66,191	3,157	10,118	178,549	66	966	1,708.85
	1935	210,848	16,760	42,468	188,590	871	2,244	3,859.32
	1936	226,202	10,482	27,566	103,757	1,436	2,529	4,387.51
	1937	106,502	720	1,406	6,019	67	336	623.76
	Totals	619,743	30,968	83,509	482,960	2,526	6,484	\$11,491.70

Basis of Costs: Includes wages of C.C.C. personnel assigned to canker elimination work figured at \$1.00 per eight hour man day plus 35¢ per man day for subsistence in 1933; 40¢ in 1934; and 50¢ during 1935, 1936 and 1937 - Cost of crew transportation, and miscellaneous expenses for supplies and equipment.

Pine and Control Area Mapping - C.C.C. Program

Pre-eradication survey work was conducted under the C.C.C. program during 1937 in all of the Northeastern States, except Massachusetts, Connecticut, and New Jersey. The curtailment in the C.C.C. supervisory personnel (blister rust checkers) in 1935 resulted in a corresponding decrease in the volume of mapping work especially in New England and New York during the past two years. Most of the mapping work in these states since 1935 has been done by the C.C.C. enlisted personnel. However, in Pennsylvania, several checkers have been available for the project. In most instances the work has been restricted to a radius of from 20-25 miles from the C.C.C. camps.

In some cases where C.C.C. personnel has not been available for pre-eradication survey work, control maps prepared by W.P.A. employees have been used for the C.C.C. projects. These control maps are very useful as they enable the foremen to readily locate the bounds of the control areas, and thus limit their activities to crew supervision.

Table 34 shows the results of the pre-eradication survey work, by states, during the calendar year 1937, and the totals for the period 1933-1937, inclusive.

Table 34. - Pine and Control Area Mapping Under C.C.C. Program in Northeastern States.

1937

State	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Total Cost (All C.C.C.)
Maine	1	10,650	1,639	-	53	\$ 303.32
N.H.	9	16,048	-	-	1,301	2,405.77
Vt.	1	5,207	4,745	-	135	444.20
R.I.	3	16,190	-	-	154	626.06
N.Y.	5	66,541	8,028	-	811	1,710.49
Penna.	78	50,614	-	349	4,234	17,186.22
Totals	97	166,250	14,412	349	6,688	\$22,676.06

1933-1937

State	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost		
					State	C.C.C.	Total
Maine	296,670	169,667	-	2,446	-	\$ 16,956.86	\$ 16,956.86
N.H.	81,096	2,740	-	3,963	-	11,168.98	11,168.98
Vt.	72,351	23,515	-	718	189.59	3,940.45	4,130.04
R.I.	106,224	-	-	985	-	7,675.26	7,675.26
Conn.	47,512	93,507	-	339	-	827.60	827.60
N.Y.	73,704	35,495	-	1,221	-	2,388.49	2,388.49
Penna.	235,585	-	1,773	23,851	-	89,070.63	89,070.63
Totals	913,142	324,924	1,773	33,523	\$189.59	\$132,028.27	\$132,217.86

Basis of Costs: Includes actual salaries and transportation expenses of C.C.C. technical foremen and checkers assigned to mapping project - cost of enlisted mens' time figured on same basis as listed for Table 33 - cost of mapping supplies.

Table 35 - Total Expenditures, By Cooperating Agencies, Under C.C.C. Program in Northeastern States.

1937

State	State Funds	C.C.C.	W.P.A.	Total
Maine	-	\$27,776.21	-	\$27,776.21
N.H.	-	13,348.97	-	13,348.97
Vt.	-	15,488.26	-	15,488.26
Mass.	-	1,154.85	-	1,154.85
R.I.	-	17,428.91	-	17,428.91
Conn.	1,255.00	16,392.85	-	17,647.85
N.Y.	8,789.18	101,639.40	90.24	108,498.80
Penna.	-	122,448.48	-	122,448.48
Totals	\$8,024.18	\$315,677.92	\$90.24	\$323,792.32

1933-1937, Inclusive.

State	State Funds	P.W.A.	B.P.I.	W.P.A.	C.C.C.	Total
Maine	135.00	-	-	-	\$269,627.80	\$269,762.80
N.H.	1,241.28	-	-	-	146,627.20	147,868.48
Vt.	1,548.49	-	85.50	-	74,499.71*	76,133.70
Mass.	208.74	-	-	551.50	46,318.88	47,079.12
R.I.	15.00	-	-	-	98,173.78	98,188.78
Conn.	2,919.72	244.36	1,339.60	-	125,495.24**	129,998.92
N.Y.	51,344.51	-	-	90.24	608,973.51	660,408.26
N.J.	-	-	-	-	346.50	346.50
Penna.	1,894.84	-	-	-	603,026.95	604,921.79
Totals	\$59,307.58	\$244.36	\$1,425.10	\$641.74	\$1,973,089.57	\$2,034,708.35

*In addition, \$203.33 C.C.C. funds were expended under the P.W.A. Program.

**An additional \$218.40 C.C.C. funds were expended under the E.R.A. Program.

Table 36. - Total Cooperative Expenditures, By Projects, Under C.C.C. Program in Northeastern States During Period 1933-1937, Inclusive.

State	Period	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Treatment Diseased Pines	Field Data		Total
						Mapping	General	
	1937	\$ 21,815.94	\$5,632.78	\$24.17	-	\$ 303.32	-	\$ 27,776.21
Maine	1933-37	182,918.85	66,115.58	93.00	3,291.61	16,956.86	388.90	269,762.80
	1937	8,113.07	2,830.13	-	-	2,405.77	-	13,348.97
N.H.	1933-37	99,242.55	37,456.95	-	-	11,168.98	-	147,868.48
	1937	11,470.10	3,573.95	-	-	444.20	-	15,488.25
Vt.	1933-37	55,853.96	15,623.80	525.90	-	4,130.04	-	76,133.70
	1937	1,036.63	118.22	-	-	-	-	1,154.85
Mass.	1933-37	37,627.19	9,391.93	-	-	-	60.00	47,079.12
	1937	12,968.40	3,723.30	48.84	-	626.06	62.31	17,428.91
R.I.	1933-37	68,291.73	22,008.35	151.13	-	7,675.26	62.31	98,188.78
	1937	10,530.30	6,042.90	185.00	-	-	389.65	17,647.85
Conn.	1933-37	89,588.05	36,521.62	1,202.98	-	827.60	1858.69	129,998.92
	1937	83,085.08	23,703.23	-	-	1,710.49	-	108,498.80
N.Y.	1933-37	490,190.22	167,104.80	573.90	-	2,388.49	150.85	660,408.26
	1937	-	-	-	-	-	-	-
N.J.	1933-37	346.50	-	-	-	-	-	346.50
	1937	82,006.67	21,715.33	918.50	623.78	17,186.22	-	122,448.40
Pa.	1933-37	388,728.56	116,538.22	2,381.29	8,203.09	89,070.63	-	604,921.79
	1937	231,026.19	67,330.84	1,174.51	623.78	22,676.06	951.96	323,792.32
Totals	1933-37	1,412,787.61	\$470,761.25	\$4,928.18	\$11,494.70	132,217.86	\$2,518.75	2,034,708.35

-55-

BLISTER RUST CONTROL ACTIVITIES UNDER THE WPA PROGRAM
IN THE NORTHEASTERN STATES

Allotments

WPA funds totaling \$2,433,524.08 were allocated for blister rust control work in the Northeastern States during the period July 25, 1935 to December 31, 1937. The allotments by states were as follows:

Maine.....	\$412,382.49
New Hampshire.....	395,877.44
Vermont.....	244,844.72
Massachusetts.....	282,509.00
Rhode Island.....	29,907.52
Connecticut.....	64,541.32
New York.....	716,879.63
New Jersey.....	7,338.49
Pennsylvania.....	293,403.41
Sub-Total.....	2,427,984.08
Administrative.....	5,840.00
Grand Total.....	\$2,433,524.08

The figures listed above represent the aggregate amount of money provided through various allotments to each state. The original allotments were made July 22, 1935. On June 10, 1936, a recision was made in each state. The withdrawals were largely offset July 8, 1936 through increased allotments by the President. Again on July 28 and September 15, the President awarded additional money. Also during 1936, the Bureau, with the approval of the WPA, made certain adjustments in funds between states on August 24, November 27 and December 31. Further adjustments and increases were made during calendar year 1937. Table 58 gives detailed information on the various allotments to the states. The homeopathic procedure in allotting funds made it somewhat difficult in planning field activities, but did not cause any serious complications.

Purpose of Allotments

The specific objectives have been outlined as follows:

1. To protect our national resources of white pine from the blister rust by the systematic, thorough, and efficient elimination of Ribes from definite areas.
2. To employ in the locality of the work as many of the persons on public relief as may effectively be used.
3. To distribute opportunities for work as widely, geographically, and as equitably as may be practicable.
4. To aid in all possible ways the accomplishment of the other purposes of the Emergency Relief Appropriation Acts of 1935-1937, inclusive.

Economic and Social Value of Project

The white pine crop in the Northeastern States comprises over $7\frac{1}{2}$ million acres and has a normal commercial value of \$315,000,000. Millions of white pines are also being planted each year in connection with reforestation activities. The scenic, recreational, and water-shed protection value of this crop is likewise of tremendous importance.

The WPA program has played an important part in the protection of this valuable pine crop from blister rust, since under this program 1,909,609 acres (containing 901,290 acres of white pine) have been cleared of Ribes bushes, the alternate host of the disease. Thousands of acres of pine reproduction have been protected, thus assuring the development of future commercial stands. The program has made possible the systematic working of large areas, rather than individual units. It has also permitted the application of control measures on lands where such work was urgent, rather than basing the selection on local cooperation. It has been possible to work many remote areas, also tracts containing an abundance of Ribes, where the cost of control had prevented prior application of protection measures. This control work has served to eliminate many sources of infection that otherwise would have persisted. The maintenance of protection on areas initially worked several years ago was also materially advanced by the WPA program, particularly in townships where such activities would have been impossible without emergency funds.

The expenditure to December 31, 1937 of \$2,419,784.07 WPA money on blister rust control in the rural portions of the Northeastern States has given 8,971 security-wage workers 4,476,537 man hours of useful self-respecting employment, directly benefiting persons who would otherwise have been on town relief, especially in communities where there was a lack of other projects of a permanent public benefit. Our project was especially adapted to the employment of relief labor. It provided healthful employment where skill, except for supervision, was not necessary. The location of the work was such, that in most instances, transportation was not required in getting the men to and from work. In fact, the entire cost to the Government for transporting security-wage workers up to December 31, 1937 amounted to only \$39,537.00. Most important of all, wages constituted 94.9 percent of the entire cost of the program. The expenditures have also materially aided in stimulating local business by increasing the amount of money in circulation.

Estimating that each of the 9,096 WPA employees that have worked on our project had three dependents, a total of 36,384 individuals were, at some time during the program, being fed, sheltered and clothed from wages earned in connection with this work. When the project was initiated very acute conditions in many communities were brought to our attention. Suffering from hunger was commonly noted. It was a frequent occurrence for workers to report for duty with little or no breakfast and without lunch or funds to provide one. The elimination of these conditions, which disappeared gradually as the workers received reimbursement for their services, had a social value impossible to estimate.

The successful performance of Ribes eradication work required the closest cooperation between the individual members of the field units. It has been the constant aim of the district leaders and the local supervisors to develop this cooperative spirit and their efforts have met with unusual success. This has not only measurably increased the efficiency of the work in hand, but the schooling that the workers have had in this cooperative effort should have a helpful effect upon them as members of the community in which they reside.

One of the outstanding indirect accomplishments of this work has been to demonstrate to many individuals that the Bureau requires of its personnel full attention to the duties at hand. Many of the laborers originally had the idea that public work in general was not too laborious; not too important perhaps. They have gained a far different understanding as a result of their experience on the blister rust control project. Workers who have been unwilling to carry out instructions have been dealt with summarily to the credit of public work in general.

The enforcement of regulations forbidding smoking while working in the woods has also had a marked effect on the men. It has effectively demonstrated the need for the exercise of care to prevent the destruction of our forests through the careless use of smoking materials.

The interest displayed by the average worker has been surprisingly keen, particularly when the foreman in charge has successfully stimulated a competitive spirit among the members of his crew.

Nearly 9,100 men have received training in Ribes eradication work, and many of these persons will be available for similar work in the future. The training should also enable many of these men to maintain control of blister rust on their own properties.

Responsibilities and Direction of Work

The WPA funds with which we are concerned were specifically allocated to the United States Department of Agriculture, the Bureau of Entomology and Plant Quarantine, for expenditure by the Division of Plant Disease Control. The work is handled directly by the Department cooperating with the State WPA and NRS officers for labor assignments and with the U. S. Treasury for accounting and disbursing.

The WPA blister rust control work in each state is performed under the general plan embodied in the Memoranda of Understanding existing between the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture and cooperating States, and is fitted in with other control activities in the states so as to make a unified, coordinated work program. The Bureau, however, carries direct responsibility for both the fiscal and the technical phases of the work. The state forester or other collaborator in the state is consulted as to policies and is kept fully advised at all times. The state official administering the state plant pest laws enforces such state laws as may be available for the effective prosecution of blister rust control work, and deputizes the cooperative employees to permit the destruction of such pine and Ribes as may be necessary and as provided by state laws. Federal money cannot be used to pay compensation for plants destroyed.

The Senior Pathologist of the Regional Office was made "Project Manager" for the WPA blister rust control program in the Northeastern States and was delegated the funds allotted for the respective nine states in the region. He was also given authority to obtain services and supplies and to incur expenditures under each state allotment. Letters of authorization were issued by the Bureau to him and to each state leader. These men in turn issued monthly sub-letters of authority where necessary to employees working under their direction.

Field Supervision

The successful results under the WPA program can be attributed in a large extent to the availability of a trained force of state and district leaders and supervisors to direct the project in each district. Through the services of these men, it was possible to get the WPA employees working in the field within a few days after funds became available. These leaders were accustomed to supervising large groups of men and had little difficulty in adapting themselves to the WPA program. Most of the district leaders (the number varied from 30 to 27) have

Civil Service status and were paid \$2600 per year. In addition, all of these men were allowed expenses when away from headquarters. The supervisors (maximum number 82) were paid \$135 per month plus reimbursement on a 5¢ per mile basis for use of their personally-owned machines on official work. The supervisors were not granted any per diem allowance and were employed only during the Ribes eradication season, except in a few instances where they were retained on mapping projects during the winter of 1935-1936.

Qualifications Established for Labor

In submitting requisitions for WPA labor in the field, the following qualifications were established:

1. Must be physically able to work all day.
2. No serious defects of eyesight.
3. Stable personality, good habits, good conduct, thoroughness, industriousness, reliability and willingness.

No restrictions were placed on the age of the workers, except the WPA regulation that none of the employees could be under 16 years of age. Regardless of relief status or any other consideration, WPA laborers were released when unable or unwilling to give full effort and value. The cooperation of the NRS and WPA offices usually prevented our project from being supplied with men obviously unsuited for the work to be done. It is estimated that at least 10 percent of the workers in 1935 had previous blister rust control experience, while during 1936 and 1937 about 50 percent were experienced. In the field, only two classes of labor were used during the Ribes eradication seasons - unskilled laborers and crew foremen.

Source of Labor

All labor was secured, prior to August 13, 1936, direct from the local offices of the National Reemployment Service, at least 90 percent of the workers being taken from certified relief rolls. One of the outstanding experiences in the entire WPA program has been the evidence of mutual cooperation between the NRS and our district leaders. The closest cooperation prevailed from the inception of the work. It was through the complete cooperation of the NRS that, at the beginning of the program, we were able to have workers in the field within a few days after the release of the allotments. This was a real accomplishment; when it is appreciated, that in most sections at that time not a single copy of the necessary WPA and NRS employment record forms had been received. The local offices of the NRS have cooperated with the district leaders 100 percent. The facilities of the local NRS offices have seldom been such that they could keep their records up to date. As soon as this fact was fully appreciated, our leaders immediately offered to interview listed men for the purpose of ascertaining their employment status at the time. It was only through the adoption of this procedure that we were able to procure the workers as needed. It also eliminated the needless preparation of USES 325 forms in cases where the registrants were employed, but had not notified the NRS to that effect.

During the period August, 1936 to July, 1937, the desired labor was obtained through the district W.P.A. offices. With few exceptions, good cooperation was evidenced at all times, but the service was not as prompt as under N.R.S.

In Pennsylvania, one of the district W.P.A. managers was reluctant to furnish the desired number of workers because the men on our project were paid higher wages than those paid workers on local projects. The matter was reported to the state office of the W.P.A., but was never satisfactorily adjusted. To offset this condition additional workers were employed in other sections of the state.

Since July, 1937, all the W.P.A. administrative activities have been centralized at the respective state headquarters, which necessitated the submission of all labor requisitions to these offices. This procedure materially interfered with the prompt assignment of workers, and seriously handicapped the control work in some sections of the Northeast. Repeated protests to the state W.P.A. officials did not accomplish the desired results.

The 90-10 ratio required between relief and non-relief workers up to April 15, 1937 was consistently maintained in each state, except during the period June 1 to August 28, 1936 when 406 workers were exempted from the required ratio in Maine, New Hampshire and Vermont. Since April 16, 1937; W.P.A. regulations have required that at least 95% of all employees be taken from relief rolls. This ratio has been maintained in all states, except Connecticut and New Jersey. As less than 20 W.P.A. laborers were employed on the projects in each of these states, exemptions from the required 95-5 ratio were permitted in accordance with Sections 2 and 6 of W.P.A. Administrative Order No. 54.

Personnel

Funds for blister rust control work under the W.P.A. Program were first made available July 25, 1935, and labor was being employed by July 29. During the first half of August, 1935, a total of 1,800 persons were on the W.P.A. payroll. For the next two and a half months, the W.P.A. personnel averaged 2,955 employees. An average of 563 W.P.A. workers were employed chiefly on pre-eradication survey work during November and December, 1935. The average number of W.P.A. employees during 1936 and 1937 were as follows:

<u>Period</u>	<u>Major Field Project</u>	<u>Average No. WPA Employees</u>
January 1 to April 30, 1936	Pre-eradication surveys	418
May 1 to September 30, 1936	Ribes eradication	4,146
October 1 to December 31, 1936	Pre-eradication surveys	391
January 1 to April 30, 1937	Pre-eradication surveys	343
May 1 to September 30, 1937	Ribes eradication	819
October 1 to December 31, 1937	Pre-eradication surveys	578

A peak number of 4,457 workers were employed from July 1-15, 1936, and the average number of employees was 1,383 per semi-monthly period for the entire program to December 31, 1937.

Table 37. - Employment on Blister Rust Control Under W.P.A. Program
Calendar Year 1937

State	Security Wage Workers						Appointees *			All Employees		
	Relief			Non-Relief								
	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.
Maine	138,017	1078.3	89.9	-	-	-	8,160	42.6	3.5	146,177	1120.8	93.4
N.H.	132,667	1097.4	91.5	31	0.3	-	9,840	51.3	4.3	142,538	1149.0	95.8
Vt.	118,144	842.0	70.2	-	-	-	4,320	22.5	1.9	120,464	864.5	72.1
Mass.	100,159	782.6	65.2	-	-	-	9,600	50.0	4.2	109,759	832.6	69.4
R.I.	5,475	44.6	3.7	-	-	-	480	2.5	0.2	5,955	47.0	3.9
Conn.	13,775	108.3	9.0	-	-	-	1,920	10.0	0.8	15,695	118.3	9.8
N.Y.	231,090	1806.4	150.5	1138	8.9	0.7	18,120	94.4	7.9	250,348	1908.7	159.1
N.J.	3,142	25.7	2.1	-	-	-	1,200	6.3	0.5	4,342	32.0	2.6
Penna.	69,031	681.7	56.8	175	1.6	0.1	6,240	32.6	2.7	75,444	715.8	59.6
Sub-												
Totals	809,500	6466.8	538.9	1542	10.8	0.8	69,880	312.0	26.0	870,722	6788.6	565.7
Admin.	-	-	-	-	-	-	4,095	24.4	2.0	4,095	24.4	2.0
Totals	809,500	6466.8	538.9	1542	10.8	0.8	65,975	336.4	28.0	874,817	6813.0	567.7

July 29, 1935 to December 31, 1937

	Security Wage Workers						Appointees *			All Employees		
	Relief			Non-Relief								
	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.
	726,909	6653.2	471.1	65,891	436.3	36.3	43,488	226.6	18.9	826,288	6315.0	526.3
	653,647	5173.0	431.1	116,540	915.7	76.3	45,322	236.0	19.7	815,409	6324.7	527.1
	498,814	3781.4	315.1	40,175	312.1	26.0	27,091	141.1	11.6	566,080	4234.6	352.9
	394,885	3072.2	256.0	8,821	68.4	5.7	35,962	187.3	15.6	439,668	3327.9	277.3
	65,081	433.9	36.2	3,639	28.8	2.4	1,440	7.6	0.6	60,160	470.0	39.2
	112,638	875.7	73.0	1,831	14.1	1.2	5,434	28.3	2.4	119,903	918.1	76.6
	218,066	9,477.0	789.8	38,600	300.4	25.0	81,211	428.0	35.2	1,337,877	10,200.4	850.0
	10,870	86.6	7.2	-	-	-	2,606	13.0	1.1	13,378	99.6	8.3
	517,639	4,377.7	364.8	21,691	178.8	14.9	37,324	194.4	16.2	578,554	4,750.9	395.9
	188,349	32,930.7	2744.3	287,188	2253.4	187.8	279,778	1457.1	121.5	4,755,315	36,641.2	3053.6
	-	-	-	-	-	-	4,095	24.4	2.0	4,095	24.4	2.0
	188,349	32,930.7	2744.3	287,188	2253.4	187.8	283,873	1481.5	123.5	4,759,410	36,665.6	3055.6

* Includes time paid supervisors for all accumulated annual leave taken after completion of their field services.

Table 38 - Peak Employment and Man Year Cost of Blister Rust Control
Under W.P.A. Program in Northeastern States

Calendar Year 1937

State	Peak Employment		Man Year Cost		Man Month Cost		
	No. Men	Period	Over All (1)	Net (2)	Over All	Net	Operating Cost
Maine	200	6/16-8/30/37	\$779.42	\$810.64	\$65.02	\$67.58	\$3.98
N.H.	193	6/16-6/30/37	756.25	780.74	62.98	65.91	1.87
Vt.	120	8/16-8/31/37	716.10	735.51	59.65	61.24	3.19
Mass.	97	11/1-11/15/37	953.89	1,016.34	79.52	84.60	3.85
R.I.	11	7/1-7/15/37	881.73	929.39	73.17	77.28	6.20
Conn.	14	11/18-11/30/37	877.90	964.72	74.21	81.08	7.88
N.Y.	339	6/16-6/30/37	859.44	903.77	71.59	75.32	1.76
N.J.	8	7/16-7/31/37	871.52	1,079.02	71.03	88.17	.04
Penna.	93	7/16-7/31/37	758.35	794.34	63.14	66.15	3.09
Sub-							
Totals	-	-	811.81	851.07	67.66	70.92	2.84
Admin.	-	-	2,807.16	-	230.09	-	-
Totals	-	-	\$818.84	\$861.47	\$68.25	\$71.79	-

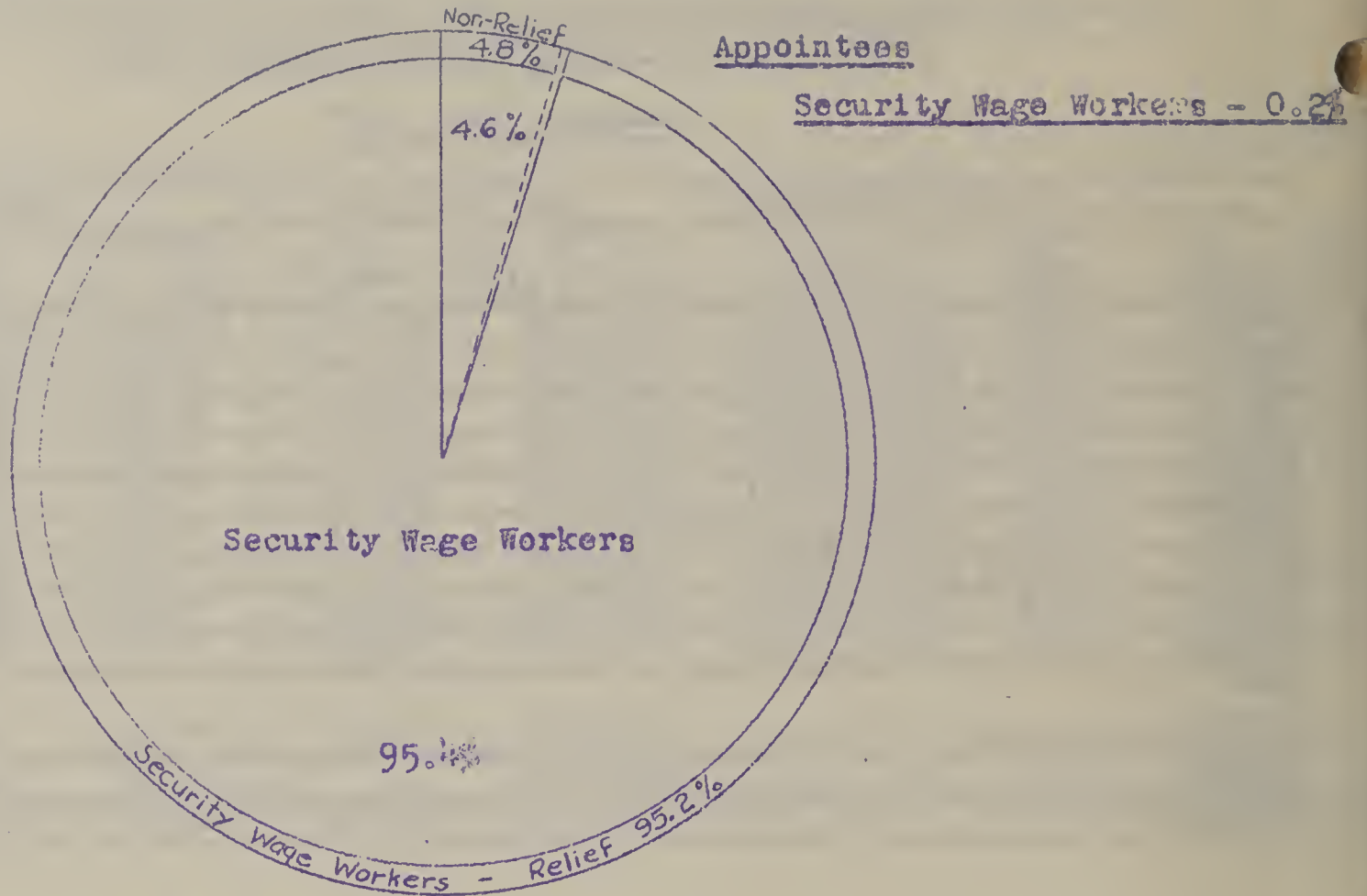
July 29, 1935 to December 31, 1937

State	Peak Employment		Man Year Cost		Man Month Cost		
	No. Men	Period	Over All (1)	Net (2)	Over All	Net	Operating Cost
Maine	741	8/16-8/31/36	\$782.48	\$811.81	\$65.21	\$67.64	\$4.75
N.H.	905	6/1-6/15/36	749.23	778.32	62.44	64.86	3.46
Vt.	632	8/16-8/31/36	689.60	713.45	57.47	59.45	3.66
Mass.	327	6/1-6/15/36	942.27	998.44	78.52	83.20	4.65
R.I.	64	6/1-6/15/36	762.54	774.39	63.60	64.63	1.15
Conn.	115	9/1-9/15/35	838.87	865.80	69.57	72.20	6.37
N.Y.	1,134	6/1-6/15/36	840.87	877.19	70.07	73.10	1.76
N.J.	14	8/16-8/31/36	878.40	1,012.60	73.20	84.19	3.14
Penna.	608	7/16-7/31/36	738.16	769.66	61.51	64.14	3.33
Sub-							
Totals	-	-	792.44	825.27	68.04	68.77	3.35
Admin.	-	-	2,807.15	-	230.09	-	-
Totals	-	-	\$793.76	\$827.19	\$66.15	\$68.93	-

(1) Based on total expenditures divided by number of security-wage and appointee man years.

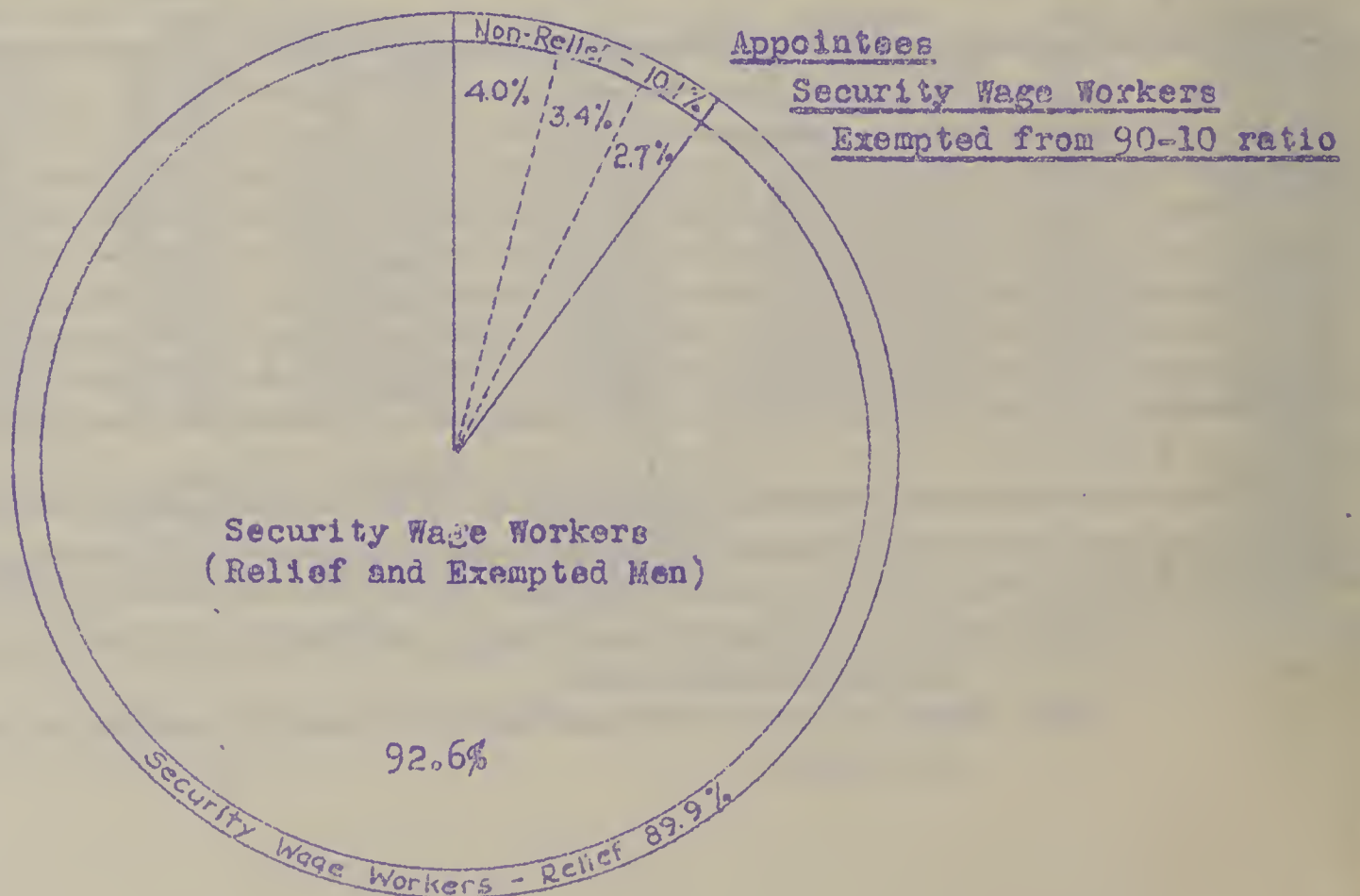
(2) Based on total expenditures divided by number of security-wage man years.

Personnel by Employment Classes on Blister Rust Control
WPA Program in Northeastern States - Calendar Year 1937



Total Man Months of Employment - 6,788.6

Personnel by Employment Classes on Blister Rust Control
WPA Program in Northeastern States - July 29, 1935 - December 31, 1937, Inclusive



Total Man Months of Employment - 36,641.2

(Includes 406 men exempted from 90-10 ratio in three states.)

Table 39-Man Months of Employment by Relief and Non-Relief Employees and The Status in Maintaining Required Ratio

Calendar Year 1937

State	Total Man Months Employment		Man Months Surplus or Deficit Over Required Ratio
	Relief	Non-Relief	
Maine	1,078.3	42.5	+25.7
N.H.	1,097.4	51.6	+16.3
Vt.	842.0	22.5	+29.2
Mass.	782.5	50.0	+ 0.4
R.I.	44.6	2.6	+ 0.6
Conn.	108.3	10.0	- 2.5
N.Y.	1,805.4	103.3	+10.1
N.J.	25.7	6.3	- 4.9
Penna.	681.7	34.1	+ 8.1
Totals	6,465.8	322.8	+83.0

July 29, 1937 to December 31, 1937

State	Total Man Months Employment		Man Months Surplus or Deficit Over Required Ratio
	Relief	Non-Relief*	
Maine	5,653.2	653.3	-78.8
N.H.	5,173.0	1,146.7	-626.1
Vt.	3,781.4	449.3	-71.0
Mass.	3,072.2	253.6	+51.2
R.I.	433.9	33.1	+10.3
Conn.	875.7	40.3	+50.8
N.Y.	9,477.0	712.8	+258.0
N.J.	86.6	13.0	- 4.4
Penna.	4,377.7	366.5	+87.4
Totals	32,930.7	3,670.6	-325.6

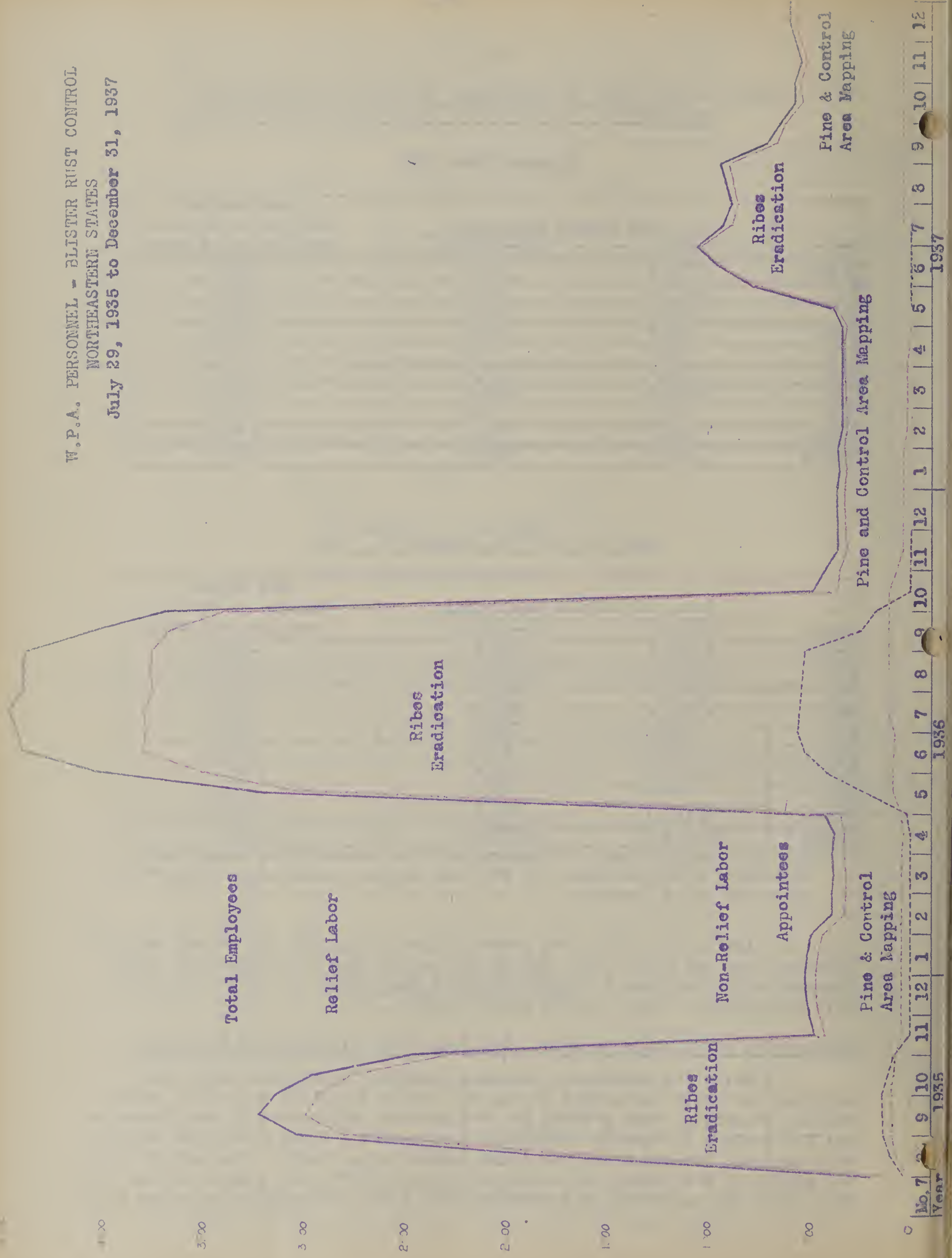
*Does not include time paid supervisors for accumulative annual leave totalling 1,197 man days, or 39.9 man months, taken after completion of their field services.

Excluding the 1020.9 man months worked by the 406 non-relief laborers exempted from the 90-10 ratio during the period June 1 to August 28, 1936, there actually has been a surplus of 695.3 man months of relief employment over the required ratio for the entire program.

Explanation of Deficits in Maine, New Hampshire, Vermont, and New Jersey

In Maine, 51 non-relief laborers, exempted from 90-10 ratio, were employed for 135.2 man months during the period June 1 to August 28, 1936. Similar exemptions were granted for 233 non-relief laborers in New Hampshire and 122 workers in Vermont during the same period. These non-relief workers were employed for 621.3 and 264.4 man months respectively. The deficit of 4.4 man months in New Jersey was accumulated during 1937 when exemption from the 95-5 ratio was permitted in accordance with W.P.A. Administrative Order No. 54.

W. P. A. PERSONNEL - BLISTER RUST CONTROL
NORTHEASTERN STATES
July 29, 1935 to December 31, 1937



Hours of Work and Wage Scales

At the beginning of the WPA program, the maximum hours of work per month permitted WPA laborers on blister rust control was 130. The working schedule was established at twenty $6\frac{1}{2}$ -hour days per month. This arrangement was continued until March 16, 1936, at which time the maximum number of hours per month was reduced to 128 and the working schedule changed to 16 eight-hour days per month.

After conducting the program for about two months, we were advised that the wage scales would have to be approved by the respective state administrators. As a result of personal conferences with these men, uniform state rates, based on the highest county rate in the district where the project was being operated, were approved for each state. In some states, considerable difficulty was experienced in securing approval of the uniform rates, but the objective was finally accomplished in each state of the region. About July 1936, it was necessary to again contact the state administrators in order to obtain their approval of rates based on prevailing wages. The continuance of uniform state rates was approved in all cases. In four states, Maine, Connecticut, New York and Massachusetts, the 128-hour per month basis was continued, but it was established as follows in the other states: New Hampshire, 125; Vermont, 138; Rhode Island, 125; and Pennsylvania, 105.

In New Hampshire, the administrator approved the continuance of uniform rates until October 30, 1936. By that time we had completed our eradication work for the season. During the fall and winter months, he required county rates for unskilled workers, but agreed to the continuance of a statewide rate for the skilled laborers on our mapping project which employed only skilled men. The uniform state rate for skilled labor was used throughout the program, but during May 1 - July 31, 1936, it was necessary to pay unskilled workers on the basis of county rates. These local rates were abandoned August 1, 1936 and state rates approved for all classes of employees.

In Massachusetts, the assistant WPA administrator held up final approval of uniform rates for several months due to his interpretation of the WPA regulations and their application. He was not convinced that our project had a physical continuity, even though the WPA office at Washington phoned him that the proposed wage scale would meet with their approval. However, he finally agreed to a uniform state rate.

The only other exception to the uniform state rates occurred November 15, 1936 in Pennsylvania where the state administrator required a reduction of the hours to 96 per month in a unit of four counties (Bradford, Wyoming, Centre and Susquehanna) situated in the northeastern part of the state, a considerable distance from the other contiguous counties in which the project was being conducted. As only this one new district was involved in these special rates, it did not complicate our office procedure to any appreciable extent.

During 1937, the State W.P.A. Administrators in New Hampshire and Connecticut revised the hours of work and the wage scale for our projects in these two states. The maximum number of hours per month was reduced from 128 to 120 in both instances.

In all districts the rates of pay to employees on blister rust control at least equalled the rates paid to workers on local projects; and in most instances, our rates were higher. In spite of this condition, no complaints were received at the Cambridge Office, except the one made by the district WPA official in Pennsylvania. The State Administrators also advised that very few criticisms had been received by their offices as to the differences in wage rates.

Table 40 - Approved WPA Wage Scales for Federal Blister Rust Control Work
In Northeastern States

<u>Period</u>	<u>Maximum Hours Per Month</u>	<u>Wage Rates by Personnel Classes</u>			
		<u>Unskilled</u>	<u>Inter- mediate</u>	<u>Skilled</u>	<u>Professional & Technical</u>
<u>Maine</u>					
7/28/35 - 3/15/36	130	\$52.00	-	\$75.00	-
3/16/36 - 7/31/36	128	52.00	-	75.00	-
8/1/36 - 12/31/37	128	52.48	60.16	75.52	-
<u>New Hampshire</u>					
8/1/35 - 10/31/35	130	52.00	-	75.00	-
11/1/35 - 7/31/36	128	40.00-52.00*	-	75.00	-
8/1/36 - 12/31/36	125	50.00	-	75.00	-
1/1/37 - 12/31/37	120	48.00	-	63.60	76.80**
<u>Vermont</u>					
8/2/35 - 3/15/36	130	44.00	-	63.00	-
3/16/36 - 7/31/36	128	44.00	-	63.00	-
8/1/36 - 8/31/36	128	44.80	-	64.00	-
9/1/36 - 10/8/37	138	48.30	-	69.00	-
10/8/37 - 12/31/37	138	48.30	54.40 (136 Hrs.)	69.00	-
<u>Massachusetts</u>					
8/1/35 - 3/31/36	130	55.00	65.00	85.00	-
4/1/36 - 5/30/36	130	60.50	71.50	93.50	-
6/1/36 - 12/31/37	128	60.50	71.50	93.50	103.40***
<u>Rhode Island</u>					
8/8/35 - 3/15/36	130	55.00	-	85.00	-
3/16/36 - 7/31/36	128	55.00	-	85.00	-
8/1/36 - 8/4/37	123	55.35	-	85.48	-
8/4/37 - 12/31/37	123	55.35	65.19	85.48	-
<u>Connecticut</u>					
8/1/35 - 3/15/36	130	55.00	-	85.00	-
3/16/36 - 7/31/36	128	55.00	-	85.00	-
8/1/36 - 8/31/37	128	55.04	-	85.76	-
9/1/37 - 11/30/37	128	55.04	65.28	85.76	-
12/1/37 - 12/31/37	120	54.00	64.80	85.20	-
<u>New York</u>					
8/15/35 - 10/15/35	130	55.00	-	85.00	-
10/16/35 - 3/15/36	130	60.50	-	93.50	-
3/16/36 - 7/15/36	128	60.50	-	93.50	-
7/16/36 - 12/31/37	128	60.16	70.40	93.44	-

*County rates used only during period May - July 31, 1936.

**Used in New Hampshire only during the period Jan. 1 - July 15, 1937.

***Used at Regional Office during period June 8, 1936 - July 15, 1937.

in 12/1/17

Period	Maximum Hours Per Month		Wage Rates by Personnel Classes		
			Unskilled	Inter- mediate	Professional & Technical
1/1/35-10/30/35	130	<u>New Jersey</u>	\$55.00	-	\$85.00
5/16/36-7/31/36	128		60.50	-	85.00
8/1/36-9/30/36	121		60.50	-	84.70
5/16/37-12/31/37	128		60.50 (121Hrs.)	-	84.48 (128 Hrs.)
		<u>Pennsylvania</u>			
8/16/35-11/15/35	130		44.00	-	63.00
11/16/35-1/31/36	130		48.40	-	69.30
2/1/36-3/15/36	130		52.80	-	77.00
3/16/36-7/31/36	128		52.80	60.50	77.00
8/1/36-12/31/37	105		52.80	60.50	70.00
11/15/36-12/31/37	96*		48.40*	55.00*	63.00

*Only in Counties of Bradford, Wyoming, Centre and Susquehanna.

Secretary-stenographer at Harrisburg Office - \$85. per month -
maximum 120 hours per month.

Making Up of Lost Time By W.P.A. Labor

During the first few months of the program, considerable confusion existed as to whether or not it was necessary to make up credited time that had been lost due to inclement weather. Effective January 11, 1936, six states went on record as not requiring such lost time to be made up, but three states (New Hampshire, Massachusetts, and Rhode Island) continued to require the making up of such lost time. A W.P.A. regulation issued March 11, 1936 make it compulsory to make up credited lost time in all states. This procedure greatly complicated our record work, as it was necessary to determine for each payroll the amount of credited time and the amount of make up time. This condition continued until June 16, 1936 when instructions were issued that the W.P.A. labor would only be paid for time actually worked. In accordance with W.P.A. Administrative Order No. 56, dated May 18, 1937 employees have since that time been permitted to make up time lost due to weather conditions, sickness or injury, and temporary interruptions in the project due to circumstances beyond their control.

Transportation

Each district leader has been provided with a Government car for use in connection with his supervisory activities. Most of these automobiles are of the coach model type and were purchased prior to the W.P.A. Program. However, 13 sedan delivery trucks were purchased from W.P.A. money during the fall of 1935 and assigned to some of the district leaders whose cars were no longer serviceable for long trips. Instead of turning in their old automobiles, the cars were assigned to some of the W.P.A. supervisors during 1936 and have been used for transporting W.P.A. crews since that time. No Government trucks have been purchased for transporting W.P.A. laborers, because of the seasonal nature of our project. However, during December, 1937, arrangements were made to obtain 16 half-ton Dodge trucks, with pick-up bodies, from the Bureau of Entomology and Plant Quarantine Office at Greenfield, Massachusetts. These trucks were available for transfer due to the curtailment of

the gypsy and brown-tail moth control project under the W.P.A. Program.

All W.P.A. workers on our project travel to and from work on their own time. Instructions have been issued to the supervisory force to provide transportation where the daily cost to the worker exceeded car fare, normally 20 cents per day. A survey made in August, 1936 showed that 42 percent of the W.P.A. personnel employed at that time rode to and from work at their own expense, 38 percent traveled in cars provided at Government expense, 19 percent used automobiles furnished by towns and counties, while only 1 percent walked. The entire cost to the Government for transporting security wage workers up to December 31, 1937 amounted to \$39,537.00. Of this total, only \$7,676.23 was expended during the calendar year 1937.

Whenever transportation was necessary at Government expense, one of the following procedures was authorized:

1. Personally-owned cars at rate of 4 cents per mile for security-wage workers, and 5 cents per mile for appointees.
2. Personally-owned cars on owner-operator basis. This procedure proved very satisfactory, but was limited to cars owned and operated by relief security wage workers. Under this procedure, the owner was paid not only for his personal services on the work, but also for the use of his car.
3. Trucks hired on a contractual basis, where the total payments under one agreement did not exceed \$300.00. Only a few contracts of this type were made.

Safety Measures

Copies of all W.P.A. instructions concerning safety regulations have been furnished the supervisory personnel in the Northeastern States. Considerable confusion existed as to the application of the regulations and the inspection of the automobiles by W.P.A. officials. Only a few inspections have been made. Red flags and flares were provided in November, 1936 for all cars transporting W.P.A. workers on our project. Experienced drivers have been selected to operate the Government cars assigned to project, and all of these drivers have been furnished with Government operators' licenses.

Injuries and Compensation to W.P.A. Workers

During the period July 29, 1935 to December 31, 1937, a total of 9,096 workers have been employed for 4,755,315 man hours on the W.P.A. blister rust control activities in the Northeastern States. In spite of the large force of men employed, only 417 alleged injuries were reported up to December 31, 1937. The following summary shows the personnel employed and a classification of the alleged injuries sustained during the entire program.

Table 41- Personnel Employed and Classification of Alleged Injuries
Sustained on W.P.A. Blister Rust Control Project in Northeastern States

State	Total No. Men Employed	Total Man Hours Employment	No. Alleged Injuries, By Classes											
			Poison Ivy		Infections		Blood Poisoning		Fractures		Sprains & Bruises		Organic	
			1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937
Maine	1,523	826,288	4	13	2	7	-	1	-	-	-	7	-	3
N.H.	1,745	815,409	-	15	1	6	-	-	-	-	4	28	1	9
Vt.	1,411	566,080	10	35	1	26	1	2	-	3	2	31	6	23
Mass.	668	439,668	6	21	3	6	-	-	1	2	3	16	3	14
R.I.	110	60,160	-	-	-	-	-	-	-	1	-	2	-	-
Conn.	232	119,903	-	2	-	1	-	1	-	-	-	-	-	1
N.Y.	2,255	1,337,877	1	36	4	11	-	-	-	1	2	25	8	22
N.J.	31	13,376	1	1	-	-	-	-	-	-	-	-	1	1
Penna.	1,121	576,554	5	17	-	4	-	-	-	2	2	12	3	9
Totals	9,098	4,755,315	27	140	11	61	1	4	1	9	13	121	22	82
Percentage of Total Injuries			36.0	33.6	14.7	14.6	1.3	1.0	1.3	2.1	17.3	29.0	29.4	19.7

Only one death occurred and this was from meningitis which resulted from a twig being forced into the ear. Two employees are still disabled as a result of injuries during the first year of the program. These two men have been treated at Government hospitals, but according to latest reports received from the Compensation Commission, final disposition has not been made in either case. One other employee who was injured in October, 1937 is now receiving treatment at a Government hospital near New York City.

Over one third of the total injuries were due to poisoning, chiefly from poison ivy. Twenty nine percent of the cases were sprains and bruises, principally to feet, legs and the back. Only one of the sprains was of a serious nature. Of the 82 organic injuries, 60 represented injuries to eyes, but there was no case where the sight was lost. Nine cases of fracture were reported, including one instance where an employee's leg was broken as a result of an automobile accident. This was the only automobile accident involving injuries to W.P.A. employees reported for the duration of the program. A total of 61 cases of infection occurred, due chiefly to thorns being forced into various parts of the body, mostly the hands and fingers, but in only one instance was the consequence serious.

Table 42 - Number of Accidents Per 100 W.P.A. Employees and Compensation
Payments Made To Such Employees Injured on Blister Rust Control Work
(July 29, 1935 to December 31, 1937)

State	Total No. Employees	Total No. Accidents	No. Accidents Per 100 Employees	No. Men Paid Compensation	Total Amount Paid	Average Amount Paid Per Case
Maine	1,523	31	2.0	10	\$51.66	\$5.17
N.H.	1,745	58	3.3	9	56.68	6.30
Vt.	1,411	120	8.5	24	481.83	20.08
Mass.	668	59	8.8	7	196.17	28.02
R.I.	110	3	2.7	1	295.00	295.00
Conn.	232	5	2.2	1	6.67	6.67
N.Y.	2,255	95	4.2	19	611.84	32.20
N.J.	31	2	6.5	0	0	0
Penna.	1,121	44	3.9	4	415.00	103.75
Totals	9,098	417	4.6	75	\$2,114.35	\$28.26

No report has been received from the Compensation Commission as to the cost of hospitalization of the injured workers.

Activities of the Regional Office
(Especially as related to the WPA Program)

Duties

Prior to the advent of the emergency programs, the personnel of the Regional Office was limited to the senior pathologist, an assistant and a secretary-stenographer. The activities were confined chiefly to general supervision of blister rust control in the Northeastern States. The office work consisted of the preparation of budgets and plans of work, summarization and analysis of field data and accomplishments, and the preparation of weekly and monthly personnel and progress reports. In addition, annual reports were prepared summarizing the results accomplished under each project in each of the States of the Northeastern Region. Property records were also kept at the Regional Office. The federal personnel in the Northeastern States consisted merely of a state leader in each of the nine states and a total of 29 district leaders. The payrolls, expense accounts and 1934 forms for these men were handled at the Washington Office.

During the FWA program several hundred laborers were employed on federal funds in addition to the appointed men. The time sheets for the laborers were sent to the Washington Office where the payrolls were prepared and submitted for payment. The same applies to expense accounts and 1934 forms. However, under the WPA program, which began July 29, 1935, practically all office work in connection with this program was assigned to the Regional Office. The office work consisted of the following items:

Preparation of budgets, plans, contracts, and schedules of work; preparation of payrolls for a maximum of 4,457 men; auditing of expense accounts for a maximum of 118 appointed men and a maximum of 75 laborers operating personally-owned machines on a four cent per mile basis; auditing all 1934 vouchers for contractual items, purchase of supplies and equipment for the entire region or arranging for such purchases through the procurement official; administrative record work in connection with all compensation cases; issuance of instructions to field personnel; and reports (weekly personnel, semi-monthly personnel and financial, monthly progress report of field activities, monthly news item, and fiscal and calendar year reports).

Personnel

At the beginning of the WPA program considerable difficulty was experienced in getting a clerical force for the Regional Office, due to the fact that the employees were taken from relief rolls and the desired number could not readily be obtained by the local employment office. During the first half of August, 1935, it was possible to secure only three workers. This number was increased to 10 during the latter half of August and to 12 during the latter half of September. The force was continued on this basis from that time until April 30, 1936, and consisted of 4 clerks, 3 stenographers, 3 typists and 2 office boys. During the period May 1, 1936 to October 3, 1936, the office force was increased to 22 workers, consisting of 8 clerks, 10 typists, 2 stenographers and 2 office boys. This increase in force was made in order to expedite payment of salaries and expenses and because the field force had been increased to about 4,500 workers. The office force during the field season of

1936 was divided into two shifts, one from 8 a.m. to 3 p.m. and the other from 3 p.m. to 10.15 p.m. This arrangement was necessary due to the limited space available and to prevent the purchase of considerable extra equipment which would have been essential if only one shift had been employed. The double-shift arrangement was used only for about a week after the ending of each payroll period. During the remainder of the time the services of the workers were staggered and they functioned on a one-shift per day basis. Mr. Cheyne took charge of the night shift, while Mr. Stimson directed the work during the day. The senior pathologist and his secretary worked the usual hours from 9 a.m. to 4.30 p.m. Frequently, however, the senior pathologist found it necessary to work a part or all of both shifts. In fact, in order to accomplish the desired results, it was often necessary for all the four regular employees to work overtime during the rush season.

The W.P.A. force at the Regional Office was reduced to 10 employees on October 16, 1936 due to the seasonal curtailment in the field work. One typist resigned in February, 1937 to take private employment, and two additional clerks were released on April 30, 1937. Since that date, seven W.P.A. relief workers have been continuously employed. Five of these employees have been on the project since its inception in 1935, and the other two were assigned during the spring of 1936. As a result of the training and experience gained by these employees during the past three years, their services have gradually become more valuable.

A total of 32 security wage workers have been employed at the Cambridge Office during the period August 1, 1935, to December 31, 1937. Six of these persons resigned to accept private employment, one resigned to be married, five were discharged because of inefficiency, thirteen were released because of curtailment in the field work, and seven are still employed. A total of 10 of the 32 workers were promoted to higher ratings during their service at the office. No politics were evident in the selection of personnel, and promotions were based entirely on the efficiency record of those concerned.

Payroll Procedure

Up to December 31, 1937, a total of 4,293 WPA payrolls had been prepared at the Cambridge Office and transmitted to the Treasury Accounts Office for payment. Payrolls were prepared on a semi-monthly basis and usually two payrolls, one for relief and another for non-relief employees, covered the services of all WPA laborers employed under the direction of a district leader.

The time sheets for the WPA laborers were submitted by the district leaders semi-monthly direct to the Cambridge Office. The payrolls were prepared there from these time sheets, usually the first day they were received, and sent by messenger to the Treasury Accounts Office at Boston. During 1935 the checks were mailed to the Cambridge Office where they were grouped by districts and sent by registered special delivery mail to the district leaders for distribution to the field workers. This procedure was continued until June 30, 1936, except that beginning May 1 our messenger called for the checks at the Accounting Office in order to expedite delivery. During the first part of July, 1936, a new arrangement was initiated in the distribution of checks whereby each check was mailed by the Cambridge Office direct to the individual concerned, the envelopes being addressed in advance of receipt of the checks. This plan speeded up the delivery of checks by at least a day. A few checks were reported as lost, but the number was insignificant. The interval between the dates the payrolls were submitted to the Treasury Accounts Office and the dates the checks were received at our

Cambridge Office averaged 3.7 days for 4,293 payrolls - see following table. Checks are now sent direct to the employee by the Disbursing Office of the U. S. Treasury.

Table 43 - Tabulation Showing Time Involved from Date Voucher Transmitted To Treasury Accounts Office to Date Checks Were Received at This Office - Period July 29, 1935 to Dec. 31, 1937.

<u>Days Involved</u>	<u>Number of Vouchers</u>	<u>Percent</u>
1	551	12.8
2	657	15.3
3	931	21.7
4	857	20.0
5	541	12.6
6	384	9.0
7	225	5.2
8	102	2.4
9	25	.6
10	8	.2
11	5	.1
12	4	.1
13	2	.0+
14	1	.0+
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	2	.0
	<u>4,293</u>	<u>100.0</u>

Payroll Encumbrances

During the period July 29, 1935 to January 31, 1936, the Treasury Department required the establishment of an advance encumbrance for each payroll. This method entailed a large amount of clerical work. Fortunately, the system was changed February 1, 1936 to allow our office to set up an advance encumbrance covering the total estimated amount to be obligated by each official project for each payroll period. This procedure greatly simplified this phase of the work.

For several months difficulty was encountered in securing prompt cancellation of unobligated encumbrances. In order to make available for re-encumbrance any unobligated balances, it is necessary for this office to issue Form A-5A, notice of cancellation of encumbrance. In many instances, it required three or four months before final approval and release of these unobligated balances could be obtained from the Treasury Accounts Office. This condition complicated our record-keeping and made it difficult to determine the exact status of funds. However, early in 1937, this situation was remedied and prompt action has since been taken on our requests for cancellation of unobligated encumbrances.

Procurement Procedure

During the first few weeks of the WPA program, it was necessary to obtain all equipment and supplies on requisition through the Procurement Division of the Treasury Department. The length of time involved in this procedure was so great, it decidedly handicapped field activities. On August 29, 1935, authority was

granted to issue requisitions and purchase supplies under competition without reference to the Procurement Division where the cost involved did not exceed \$300. This procedure greatly facilitated delivery allowing the program to go forward with more speed and efficiency.

In making purchases of small supplies and equipment in the field we were handicapped until the latter part of February, 1936, because such items had to be obtained either through the Procurement Officer or secured through the Cambridge Office under the \$300. exemption. The Accounting Office was unable to permit the inclusion of such items in the monthly expense account on Form 1012, as had been the practice under the regular program. However, such action was later approved.

Payment of Accounts (Forms 1012 and 1034)

During 1937, excellent service was rendered in the auditing and payment of 1012 and 1034 vouchers. On the whole, the field personnel made fewer mistakes in the preparation of such accounts, which facilitated the auditing of the vouchers at the Cambridge Office. The Boston Accounting and Disbursing Offices of the Treasury Department are to be commended on the prompt services rendered. In many instances, the payees received their checks within a few days after the vouchers were forwarded to Boston for payment. This prompt service has been greatly appreciated by our field personnel as well as dealers rendering services to our Division.

Accomplishments in Blister Rust Control Under the W.P.A. Program in The Northeastern States

Ribes Eradication Work During 1937

Ribes eradication has been the major field activity performed on the blister rust control project under the W.P.A. Program. Such work was conducted in 207 townships in 62 counties of the Northeastern States during the period May 1 to November 15, 1937. The projects were started as early as possible in May in all of the states, and terminated on August 27th in Rhode Island; September 30th in Maine, New Hampshire, and Connecticut; October 8th in Vermont; October 15th in Massachusetts; and October 30th in Pennsylvania. In New York and New Jersey a small amount of Ribes eradication work was performed during the early part of November, 1937. A total of 311,470 acres, practically all on individually-owned lands, was cleared of 8,939,253 wild Ribes and 6,520 cultivated bushes as a result of 60,182 man days of work during the 1937 season.

Six-man crews, consisting of five unskilled laborers and a foreman were used on the 1937 W.P.A. Ribes eradication work. Practically all of the areas were systematically examined by crews in strip formation, as personnel problems and funds available did not permit the employment of scouts on the W.P.A. work. This procedure resulted in the destruction of numerous Ribes concentrations, but was a factor in restricting the amount of acreage worked.

Table 44 - Distribution of Work and W.P.A. Personnel
Employed on Ribes Eradication Work in Northeastern States - 1937

State	No. Counties in Which Work Performed	No. Towns Where Work Performed	No. Security Wage Workers		No. Supervisors
			Maximum	Average	
Maine	13	51	200	135	4
N.H.	9	36	197	141	3
Vt.	8	12	119	99	-
Mass.	7	25	89	78	-
R.I.	1	1	10	8	-
Conn.	1	1	11	9	-
N.Y.	14	51	334	221	17
N.J.	1	2	7	6	1
Penna.	8	28	90	82	-
Totals	82	207	1,067	779	25

The supervisors in Maine, New York, and New Jersey were furnished by the states, while the 3 men in New Hampshire were employed for only part of a month and paid from B.E. and P.Q. funds.

Table 45 - Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During 1937.
(Excludes nursery sanitation and cultivated black currant elimination)

State	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Local Coop.	State	Cost		Per Acre	
		Total	Worked	Pine Protected	Wild	Cult.			W.P.A.	Total	Cost	Ribes Day
Maine	Initial	27,691	10,540	1,300,691	578	5,811	696.71	2,283.38	18,322.86	21,302.95	.769	47.0
	Re-Erad.	30,296	11,627	583,346	322	5,288	431.20	1,387.45	17,213.04	19,031.69	.628	19.3
	Total	57,987	22,167	1,884,037	900	11,099	1,127.91	3,670.83	35,535.90	40,334.64	.596	32.5
N.H.	Initial	23,079	14,595	1,067,189	753	4,592	38.93	15.50	16,509.82	16,624.15	.720	46.2
	Re-Erad.	32,774	20,610	507,603	-	4,097	317.67	-	16,812.67	17,130.34	.523	15.5
	Total	55,853	35,205	1,574,792	753	8,679	416.50	15.50	33,322.49	33,754.49	.604	28.2
t.	Initial	19,527	3,516	741,538	339	4,814	1,650.37	22.50	13,955.60	16,628.47	.800	38.0
	Re-Erad.	10,568	3,734	107,908	138	2,232	836.13	-	7,380.40	8,216.53	.777	10.2
	Total	30,095	7,249	849,446	472	7,046	2,486.50	22.50	21,336.00	23,845.00	.792	28.2
Mass.	Initial	13,126	7,194	79,424	-	1,047	30.56	-	4,246.32	4,275.88	.326	6.1
	Re-Erad.	33,552	14,599	637,852	928	4,419	907.21	878.88	17,565.94	19,150.03	.571	19.0
	Total	46,678	21,793	717,276	928	5,466	937.77	878.88	21,609.26	23,425.91	.502	15.1
N.I.	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	2,394	795	13,572	-	446	-	-	1,705.02	1,705.02	.712	5.7
	Total	2,394	795	13,572	-	446	-	-	1,705.02	1,705.02	.712	5.7
Conn.	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	2,352	216	32,223	-	593	-	-	2,261.07	2,261.07	.961	13.7
	Total	2,352	216	32,223	-	593	-	-	2,261.07	2,261.07	.961	13.7
Vt.	Initial	80,449	53,692	2,856,768	1,442	19,046	16.00	14,416.08	66,395.51	80,827.59	1.00	35.5
	Re-Erad.	13,736	9,156	137,916	156	1,665	14.40	2,143.56	5,440.13	7,597.89	.553	10.0
	Total	94,184	62,788	2,994,683	1,598	20,710	30.40	16,559.44	71,835.64	88,425.48	.933	31.8
N.J.	Initial	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,417	442	16,956	15	392	-	-	1,631.36	1,631.36	1.15	12.0
	Total	1,417	442	16,956	15	392	-	-	1,631.36	1,631.36	1.15	12.0
Verm.	Initial	20,510	3,005	856,268	1,854	5,761	-	356.70	24,362.33	24,699.03	1.20	41.7
	Re-Erad.	-	-	-	-	-	-	-	-	-	-	-
	Total	20,510	3,005	856,268	1,854	5,761	-	356.70	24,362.33	24,699.03	1.20	41.7
Totals	Initial	184,362	92,431	6,901,878	4,966	41,060	2,492.47	17,074.16	143,791.44	163,338.07	.886	31.1
	Re-Erad.	127,088	61,182	2,037,376	1,554	19,132	2,506.61	2,409.69	69,807.63	76,723.93	.604	16.0
	Total	311,470	153,613	8,939,253	6,520	60,192	4,999.08	21,483.85	213,599.07	240,032.00	.773	28.7

Basis of costs: The cost figures are based on the total cost of laborers and foremen employed in locating and pulling Ribes; transportation of crews; and miscellaneous expenses for trail paper, picks, etc. The cost of any supervisors assigned to the WPA control work is not included in above expenditure for Ribes eradication.

Table 46. Ribes eradication work performed under W.P.A. Program in Northeastern States during period 1935 - 1937, inclusive.
(Excludes nursery sanitation and black currant elimination)

By States

State	Type of Erad.	Acres Worked	Ribes Pulled		Total Man Days	Local Coop.	State	W.P.A.	Total	Per Acre	
			Wild	Cult						Cost	Ribes D.
Maine	Initial	210,368	11,264,680	4,972	48,903	833.53	2,368.79	172,775.77	175,978.14	.837	53.5
	Re-Erad.	184,656	4,434,944	7,447	33,783	888.72	1,430.52	122,193.36	124,512.60	.674	24.0
	Total	395,024	15,699,624	12,419	82,686	1,722.30	3,799.31	294,969.13	300,490.74	.761	39.7
N.H.	Initial	190,829	7,769,216	5,485	41,612	321.93	149.65	142,368.33	142,839.91	.749	40.7
	Re-Erad.	202,565	4,301,409	1,275	36,848	1,429.32	123.83	126,668.47	128,221.62	.633	21.2
	Total	393,394	12,070,625	6,760	78,460	1,751.25	273.48	269,036.80	271,061.53	.669	30.7
Vt.	Initial	112,410	3,562,992	2,248	58,213	9,504.12	172.08	112,916.05	122,592.25	1.09	31.7
	Re-Erad.	53,825	925,342	627	14,472	2,694.13	131.26	45,347.38	48,172.77	.895	17.2
	Total	166,235	4,488,334	2,875	52,685	12,198.25	303.34	158,263.43	170,765.02	1.03	27.0
Mass.	Initial	89,480	943,419	13,941	12,331	2,313.93	432.28	47,812.17	50,558.38	.565	10.5
	Re-Erad.	125,223	2,080,010	4,836	23,525	5,433.74	2,391.82	92,855.00	100,680.56	.804	16.6
	Total	214,703	3,023,429	18,777	35,856	7,747.67	2,824.10	140,667.17	151,238.94	.704	14.1
R.I.	Initial	4,190	4,087	443	726	-	-	2,933.48	2,933.48	.699	1.0
	Re-Erad.	35,036	50,748	2,110	5,912	-	294.73	22,193.11	22,492.84	.642	1.4
	Total	39,226	54,835	2,553	6,638	-	294.73	25,126.59	25,426.32	.648	1.4
Conn.	Initial	16,227	87,903	2,138	2,287	-	22.94	8,944.53	8,967.47	.663	6.1
	Re-Erad.	33,366	442,802	906	9,568	176.00	42.59	36,847.91	37,066.50	1.11	13.3
	Total	49,593	530,705	3,044	11,855	176.00	65.53	45,792.44	46,033.97	.928	10.7
N.Y.	Initial	432,343	14,211,858	16,117	118,862	16.00	47,810.80	446,726.13	494,551.93	1.14	32.9
	Re-Erad.	83,951	2,005,938	2,559	18,694	14.40	6,883.14	71,464.80	78,362.34	.933	23.9
	Total	516,294	16,217,796	18,676	137,556	30.40	54,693.94	518,189.93	572,914.27	1.11	31.4
N.J.	Initial	3,625	21,127	299	951	-	298.10	3,862.30	4,160.40	1.16	5.8
	Re-Erad.	1,417	16,956	15	392	-	-	1,631.36	1,631.36	1.15	12.0
	Total	5,042	38,083	314	1,343	-	298.10	5,493.66	5,791.76	1.16	7.6
Penna.	Initial	116,144	8,398,428	9,558	50,782	-	336.70	186,752.13	187,088.83	1.61	72.3
	Re-Erad.	13,945	1,011,935	508	6,927	-	-	25,656.54	25,656.34	1.84	72.6
	Total	130,089	9,410,363	10,066	57,729	-	336.70	212,408.67	212,745.17	1.64	72.3
Totals	Initial	1,175,625	46,263,713	55,201	314,667	12,989.56	51,691.34	1,125,089.89	1,189,670.79	1.01	39.4
	Re-Erad.	733,984	15,270,084	20,283	149,941	10,636.31	11,297.89	544,862.73	566,796.93	.772	20.8
	Total	1,909,609	61,533,797	75,484	464,608	23,625.87	62,889.23	1,669,952.62	1,756,467.72	.920	32.2

Basis of costs: Same as listed for Table 45.

Table 47. - Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During Period 1935-1937, Inclusive.

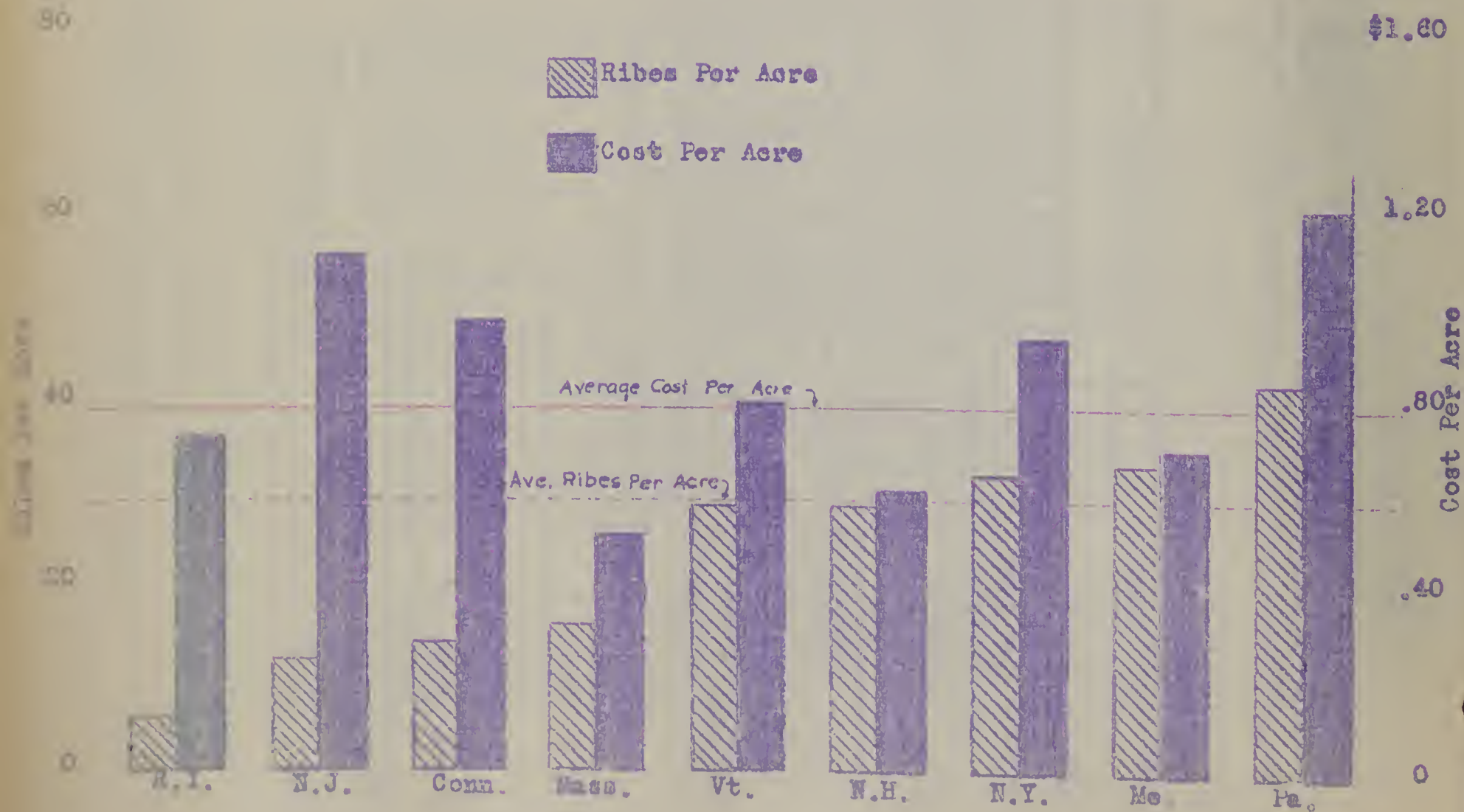
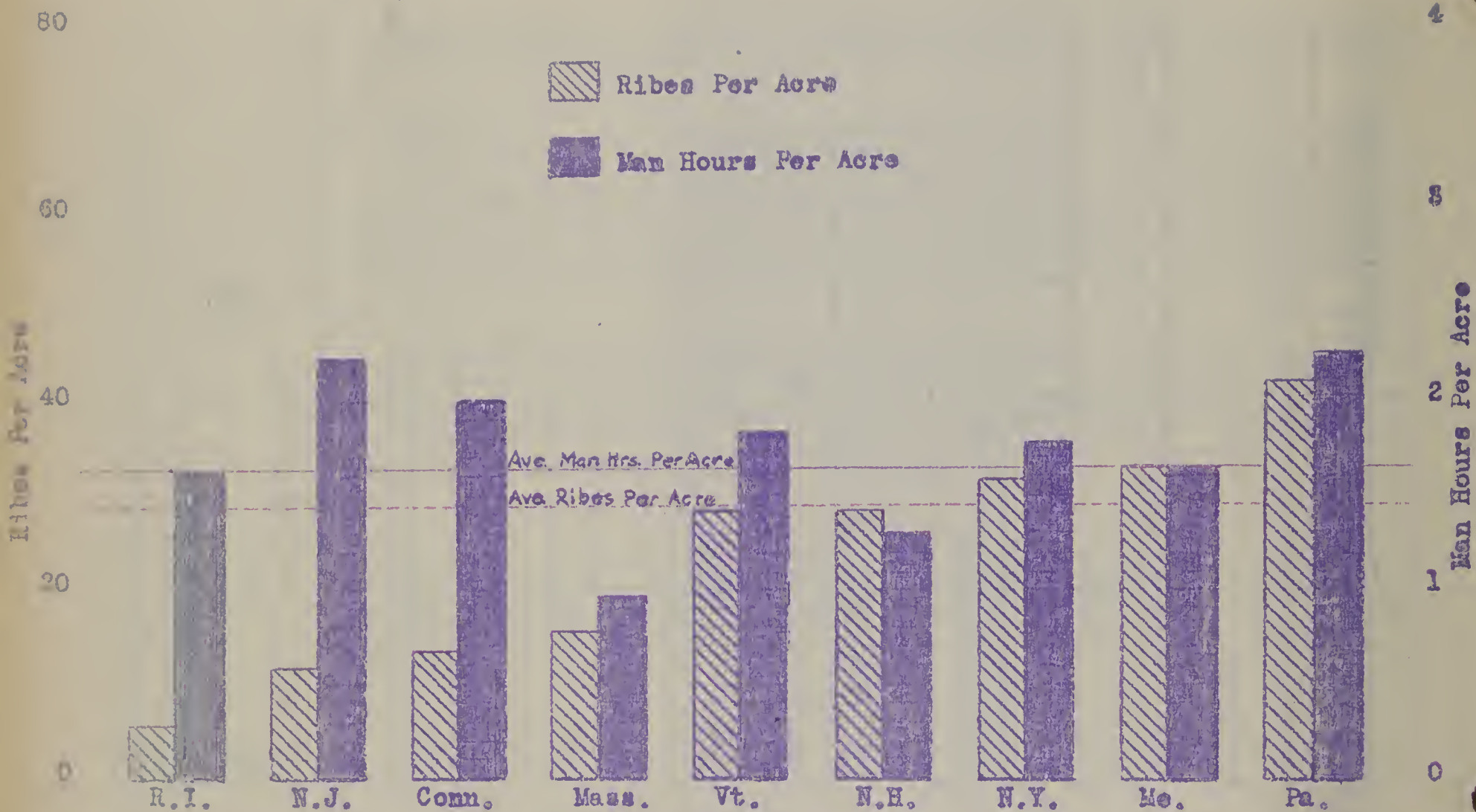
(Excludes nursery sanitation and cultivated black currant elimination)

By Years

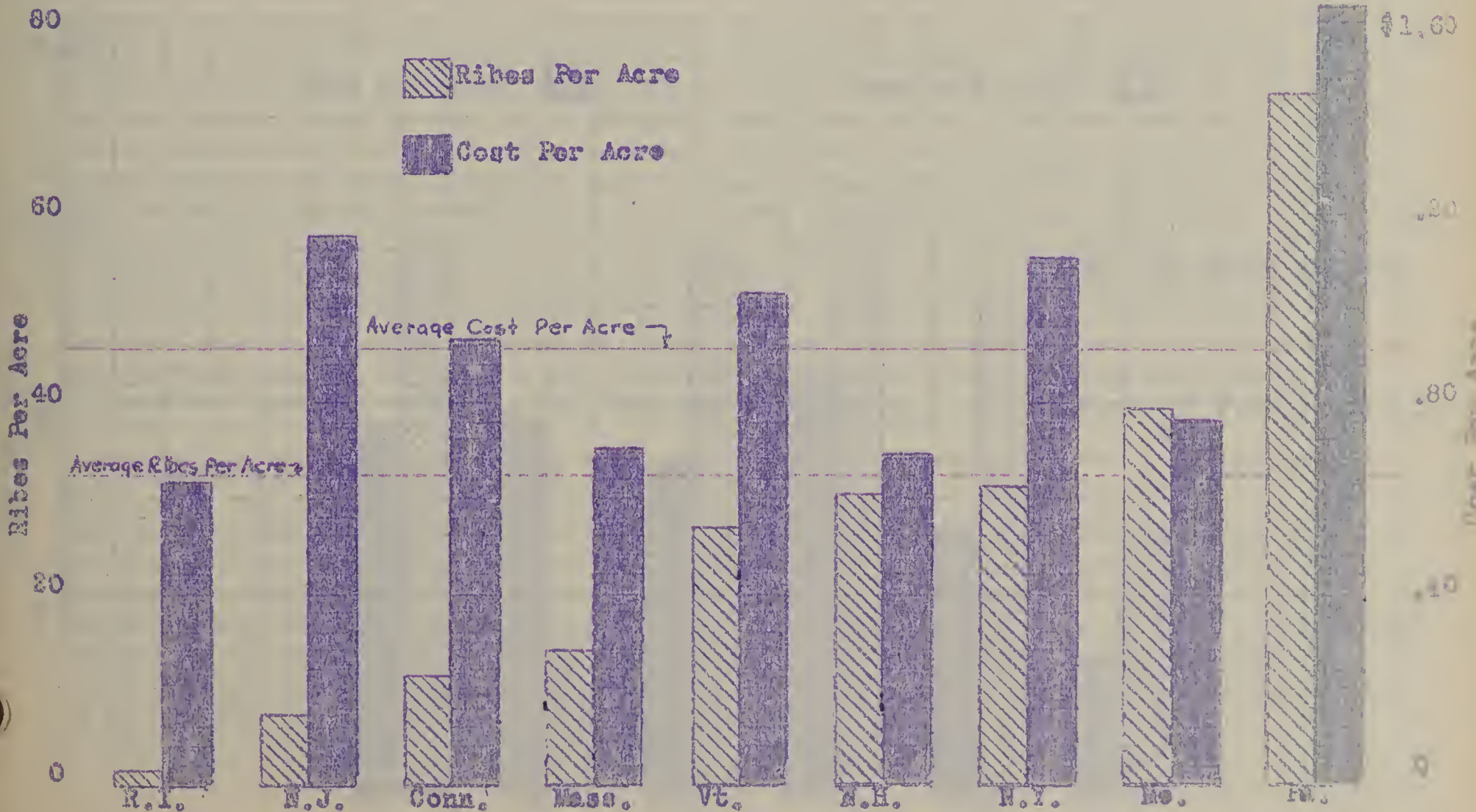
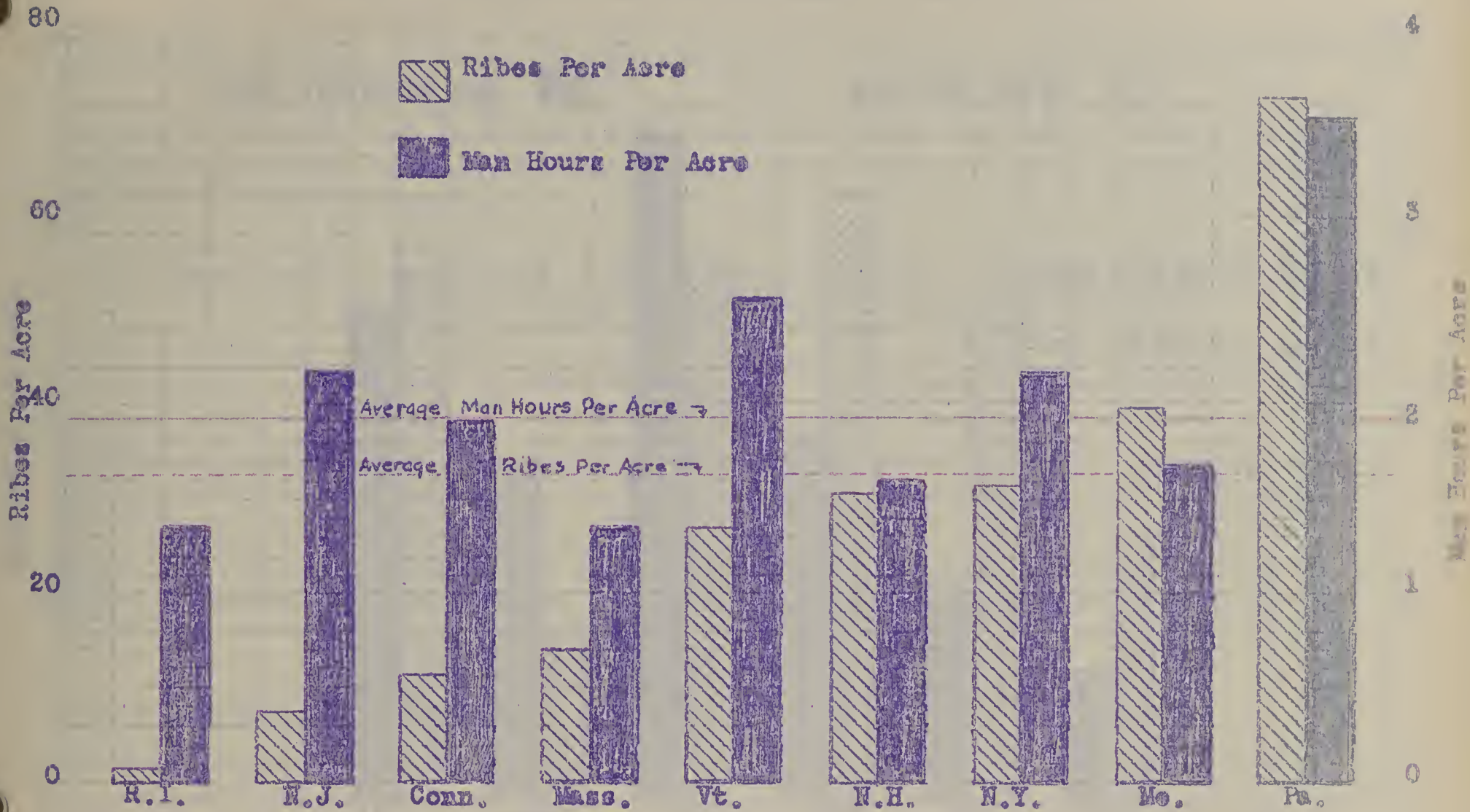
Year	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost			Per Acre	
			Ribes	Cult.		Local Coop.	State	W.P.A.	Cost	Ribes Days
1935	Initial	263,753	9,460,626	19,392	77,578	2,037.37	11,269.79	266,098.93	279,406.09	1.06 35.9
	Re-Erad.	156,885	2,545,100	3,592	35,518	2,193.55	2,884.91	127,308.20	132,386.66	.844 16.2
	Total	420,643	12,005,726	22,984	113,096	4,230.92	14,154.70	393,407.13	411,792.75	.979 28.6
1936	Initial	727,485	29,901,209	30,843	196,039	8,459.72	23,247.39	715,199.52	746,906.63	1.03 41.1
	Re-Erad.	450,011	10,687,609	15,137	95,291	5,936.15	4,003.29	347,746.90	357,686.34	.795 23.7
	Total	1,177,496	40,588,818	45,980	291,330	14,395.87	27,250.68	1,062,946.42	1,104,592.97	.938 34.6
1937	Initial	184,382	6,901,878	4,966	41,050	2,492.47	17,074.16	143,791.44	163,358.07	.886 37.4
	Re-Erad.	127,088	2,037,376	1,554	19,132	2,506.61	4,409.69	69,807.63	76,723.93	.604 16.0
	Total	311,470	8,939,253	6,520	60,182	4,999.08	21,483.85	213,599.07	240,082.00	.771 28.7
Totals	Initial	1,176,625	46,263,713	55,201	314,667	12,989.56	51,591.34	1,25,089.89	1,189,670.79	1.01 39.4
	Re-Erad.	735,984	15,270,094	20,283	149,941	10,636.31	11,297.89	544,862.73	566,796.95	.772 20.6
	Total	1,909,609	61,533,797	75,484	464,608	23,625.87	62,889.23	1,669,952.62	1,756,467.72	.920 32.2

Basis of costs: - Same as listed for Table 45.

COMPARISON BY STATES OF PER ACRE VALUES FOR RIBES ERADICATION WORK
WPA PROGRAM - NORTHEASTERN STATES - 1937



COMPARISON BY STATES OF PER ACRE VALUES FOR RIBES ERADICATION WORK
WPA PROGRAM - NORTHEASTERN STATES - 1935-1937



COMPARISON BY PROGRAMS OF PER ACRE VALUES FOR RIBES ERADICATION WORK
NORTHEASTERN STATES - 1933-1937, INCLUSIVE

30

4



Ribes Per Acre



Man Hours Per Acre

30

3

Average Ribes Per Acre

Average Man Hrs. Per Acre

30

2

10

1

0

0

Program

Regular

FWA

WPA

CCC

Other

All

Emergency Emergency

40

\$1.60



Ribes Per Acre



Cost Per Acre

30

1.20

Average Ribes Per Acre

Average Cost Per Acre

20

.80

0

0

Program

Regular

FWA

WPA

CCC

Other
Emergency

All
Emergency

Supervision of 1937 W.P.A. Ribes Eradication Work

Due to the limited amount of money available and the necessity of maintaining the 95-5 ratio as regards relief and non-relief employees, no W.P.A. supervisors were employed during the 1937 season. In most instances, the district blister rust control leaders were able to give adequate supervision to the W.P.A. project, but in several cases state men were assigned to assist in the supervisory activities. In New Hampshire, a small amount of B.E. and P.Q. money was used for such purposes.

Table 48. - Supervision of Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During 1937

State	No. Supervisors	Man Days Worked By Supervisor	Cost of Supervisors		
			State	B.E.&P.Q.	Total
Maine	4	71	588.30	-	588.30
N.H.	3	38	-	234.03	234.03
N.Y.	17	1,328	6,881.00	-	6,881.00
N.J.	1	75	506.55	-	506.55
Totals	25	1,510	7,975.85	234.03	8,209.88

Pine and Control Area Mapping

Up to the advent of the Emergency Programs in 1933, only a limited amount of pre-eradication survey work had been performed in the Northeastern States. During the early years of the control program, the acreage of white pine needing initial protection was so great and its location so evident and general, little mapping was necessary except to indicate the boundaries of the control areas. However, in recent years, the unprotected pine areas have been more isolated and smaller in size with larger proportionate protection zones. Consequently, it became necessary to do detailed mapping in order to locate the pine and to reduce the protection zone acreage to a minimum consistent with effective control. Local funds were available only for Ribes eradication work, while the state appropriations in most instances were so small that their use was confined to the yearly employment of foremen and scouts during the period May to September. The federal money was only sufficient to employ state and district leaders and the activities of these men was necessarily restricted to informational, service, and supervisory activities. The Emergency Programs provided for the first time a force of men to carry on mapping projects during the interval between the Ribes eradication seasons and excellent progress has been made since 1933 in mapping the blister rust control areas in the Northeastern States.

During the period January 1 to April 30 and from November 1 to December 31, 1937, pine and control area mapping was the major project under the W.P.A. Program in this Region. Such activities were conducted in all states, except New Jersey, but restricted to the period January 1 to April 30 in Rhode Island. The 1937 surveys resulted in 2,158,073 acres being mapped in detail, and the examination and elimination of an additional 2,366,582 acres due to lack of sufficient white pine to justify the cost of control measures. In addition, 1,241 miles of control area boundary lines were painted in the field. The detailed accomplishments in each state are shown in the following summary.

Table 49. - Summary of Pine and Control Area Mapping Under W.P.A. Program in Northeastern States During 1937.

State	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost				
						Towns	State	B.E. &P.Q.	W.P.A.	Total
Maine	109	363,466	1,141,870	79	6,402	-	155.80	17.60	26,383.60	26,557.00
N.H.	60	272,857	62,254	-	6,526	-	162.62	1.25	27,363.95	27,528.02
Vt.	48	333,339	676,854	248	4,438	495.20	-	-	15,844.00	16,339.20
Mass.	45	176,779	365,920	269	3,545	850.00	185.62	5.51	16,445.51	17,486.54
R.I.	3	28,588	-	-	234	-	-	-	1,308.48	1,308.48
Conn.	2	11,190	27,388	74	1,062	-	-	15.29	4,225.74	4,241.03
N.Y.	95	895,696	89,696	20	6,314	-	948.96	25.11	28,737.30	29,711.37
Penns.	149	53,450	*	551	1,738	-	-	4.00	8,852.77	8,852.77
Totals	511	2,138,073	2,366,582	1241	30,257	1345.20	1453.10	68.76	129,159.35	132,026.41

*In Pennsylvania, several hundred thousand acres of non-pine land was eliminated but no definite record was kept.

Basis of costs: Includes actual cost of personnel assigned to mapping work, transportation, and expenses for mapping equipment.

Table 50. - Summary of Pine and Control Area Mapping Under W.P.A. Program in Northeastern States, 1935-1937, Inclusive.

State	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost				
					Towns	State	B.E. &P.Q.	W.P.A.	Total
Maine	982,879	2,401,882	1,720	15,568	-	2,357.64	17.60	64,951.25	67,326.49
N.H.	628,589	113,740	-	13,910	-	161.14	1.25	63,986.61	64,169.00
Vt.	848,958	1,273,845	663	10,282	495.20	-	-	40,203.94	40,699.14
Mass.	363,277	554,948	579	7,585	1795.60	775.69	5.51	34,281.05	36,355.85
R.I.	73,427	-	-	862	-	820.25	-	3,445.36	4,263.61
Conn.	27,533	131,017	198	1,895	-	619.70	420.28	8,700.68	9,740.55
N.Y.	1,728,731	454,706	2,399	15,481	-	1,665.28	25.11	76,680.36	78,570.77
Penns.	230,306	*	2,196	8,312	-	-	4.00	37,421.26	37,425.26
Totals	4,878,700	4,929,938	7,750	73,895	2290.80	6,417.70	475.76	329,868.41	359,050.67

*A large acreage of non-pine land was also eliminated in Pennsylvania, but no definite record was kept.

Basis of costs: Same as listed for Table 49.

Nursery Sanitation

W.P.A. employees were used on nursery sanitation work performed in the environs of pine growing nurseries in the Northeastern States during the spring of 1937. This control work assured the continued production of disease-free white pines for use on reforestation projects. A total of 3,466 acres was examined; 1,666 wild and 49 cultivated pines being removed as a result of 223 man days labor. The accomplishments, by states, are shown in Table 51.

Table 51. - Summary of Nursery Sanitation Work Under W.P.A. Program in Northeastern States During 1937.

State	Type of Erad.	No. Nurseries Worked	Acreage Worked	Ribes Pulled		Total Man Days	Cost			Per Acre			
				Wild	Cult.		Indiv.	State	W.P.A.	Total	Cost	Ribes	Days
N.H.	Re-Erad.	1	110	86	1	4	-	-	21.12	21.12	.192	0.3	.04
Mass.	Re-Erad.	1	240	134	-	26	-	-	134.59	134.59	.561	0.8	.11
	Initial	1	590	27	45	9	-	-	46.50	46.50	.079	0.04	.01
R.I.	Re-Erad.	1	628	39	2	9	-	-	46.50	46.50	.074	0.06	.01
	Total	2	1218	63	47	18	-	-	93.00	93.00	.076	0.06	.01
Conn.	Re-Erad.	1*	-	-	-	3	-	-	12.24	12.24	-	-	-
N.Y.	Re-Erad.	1	1150	328	1	63	-	128.80	132.07	260.87	.227	0.3	.05
Penna.	Re-Erad.	2	748	1102	-	109	189.00	-	477.31	666.31	.891	1.6	.18
	Initial	1	590	27	45	9	-	-	46.50	46.50	.079	0.04	.01
Totals	Re-Erad.	7	2878	1639	4	214	189.00	128.80	823.83	1141.63	.397	0.6	.07
	Total	8	3468	1666	49	223	189.00	128.80	870.33	1188.13	.343	0.5	.06

* Preliminary examination - eradication work done under State W.P.A. project.

Basis of Costs: Includes costs of laborers and foremen while engaged in locating and eradicating Ribes in nursery sanitation zones, and cost of crew transportation.

Table 52. - Summary of Nursery Sanitation Work Performed Under W.P.A. Program in Northeastern States, 1935-1937, Inclusive.

State	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre		
	Wild		Cult.	Indiv.	State	W.P.A.	Total	Cost	Ribes	Days		
N.H.	Re-Erad.	286	144	1	128	-	-	420.12	420.12	1.47	0.6	.45
Vt.	Re-Erad.	380	257	75	75	-	24.00	218.27	242.27	.638	0.7	.20
Mass.	Re-Erad.	727	1708	-	278	-	438.48	957.49	1395.97	1.92	2.3	.38
	Initial	590	27	45	9	-	-	46.50	46.50	.079	0.04	.01
R.I.	Re-Erad.	628	39	2	9	-	-	46.50	46.50	.074	0.06	.01
	Total	1,218	63	47	18	-	-	93.00	93.00	.076	0.06	.01
Conn.	Re-Erad.	932	53	8	73	-	-	171.59	171.59	.184	0.06	.08
N.Y.	Re-Erad.	5,140	1,613	1	323	-	179.76	1225.32	1405.08	.273	0.3	.06
Penna.	Re-Erad.	1,131	2,984	28	177	252.00	-	715.33	967.33	.855	2.6	.16
	Initial	590	27	45	9	-	-	46.50	46.50	.079	0.04	.01
Totals	Re-Erad.	9,224	6,798	115	1,053	252.00	642.24	3754.62	4648.86	.504	0.7	.11
	Total	9,814	6,825	160	1,062	252.00	642.24	3801.12	4695.36	.478	0.7	.11

Basis of costs: - Same as listed for Table 51.

Elimination of Ribes Nigrum (European Black Currant)

Ribes nigrum elimination work under the W.P.A. Program during 1937 was limited to Massachusetts where 7 W.P.A. employees were used for 144 man days making a re-survey in 13 townships in Plymouth County to ascertain whether the original black currant elimination work was effective and if any replanting of such bushes had occurred. This work was combined with a re-check for other cultivated Ribes in control areas. Only 14 patches of Ribes nigrum containing 79 bushes were found. Of this number, 42 were removed before freezing weather prevented further eradication work. In the re-

check for other cultivated Ribes in the control areas, 497 bushes were found and 412 of these plants were immediately destroyed. A total of \$543.85 was expended on this survey work, all of which was paid from W.P.A. funds.

Table 53. - Summary of Ribes Nigrum Elimination Work Under
W.P.A. Program in Northeastern States, 1935*-1937, Inclusive.
(All work in State of Massachusetts)

	1935	1937**	Total
No. townships in which work done.....	12	13	=
No. properties inspected.....	49,488	12,383	61,849
No. patches located.....	468	14	482
No. Ribes located (Nigrum.....	2,392	79	2,471
(Other cult.	87	497	584
No. Ribes pulled (Nigrum.....	1,914	42	1,956
(Other cult.	0	412	412
Total man days.....	294	144	438
(Individuals.....	242.90	-	242.90
Cost (W.P.A.	1,712.75	543.85	2,258.60
(Total.....	1,955.65	543.85	2,499.50

*No black currant elimination work performed under the WPA program during 1936.

**Re-check of control areas.

Blister Rust Canker Elimination

During 1937, relief labor was used on blister rust canker elimination work in five of the Northeastern States. Such activities were confined to publicly-owned white pine plantations containing at least 20% infection on trees under 25 feet in height. In some instances, the trees were pruned to be about half their height, as experience has shown that it is more practical to follow this procedure, especially with inexperienced labor, than to search for and destroy the individual blister rust cankers on the lower branches. The results of the 1937 canker elimination work and the totals for the entire W.P.A. Program are shown in Tables 54 and 55.

Table 54 - Blister Rust Canker Elimination Work Under W.P.A.
Program in Northeastern States during 1937.

State	No. Towns	Est. No. Pines Examined	No. Fatally Infected Pines Cut Down	No. Pines Treated For Infection	No. Cankers Removed		Total Man Days	Cost			
					Branch	Stem		Local Coop.	State	W.P.A.	Total
Vt.	2	28,581	5,751	638	711	-	219	-	-	779.37	779.37
N.H.	3	139,200	34,321	11,406	12,430	-	1178	380.00	20.50	3385.85	3786.35
Mass.	4	63,944	9,320	2,895	3,295	-	1993	443.00	67.98	7621.67	8132.65
N.Y.	11	585,861	53,215	72,749	96,882	-	3689	240.00	724.92	14,784.26	15,749.18
Penn.	6	78,910	2,509	12,028	34,149	914	745	-	-	3118.85	3118.85
Totals	26	916,496	104,896	99,715	147,467	914	7822	1083.00	813.40	29,690.00	31,566.40

Basis of costs:- Includes cost of personnel assigned to canker elimination work, crew transportation, and cost of equipment and supplies.

Table 55. - Blister Rust Canker Elimination Work Under W.P.A. Program in Northeastern States, 1935-1937, inclusive.

State	Est. No. Pines Examined	No. Fatally Infected Pines Cut Down	No. Pines Treated For Infection	No. Cankers Removed		Total Man Days	Cost			
				Branch	Stem		Local Coop.	State	W.P.A.	Total
N.H.	28,581	5,751	638	711	-	219	-	-	779.37	779.37
Vt.	170,700	35,565	15,876	14,970	42	1,659	380.00	20.50	4924.65	5325.15
Mass.	83,944	9,320	2,895	3,295	-	1,993	443.00	67.98	7621.67	8132.65
N.Y.	935,069	123,285	123,034	158,848	-	8,132	240.00	721.92	32,334.40	33,299.32
Penna.	78,910	2,309	12,026	34,149	914	745	-	-	3118.85	3118.85
Totals	1297,204	176,210	152,471	211,973	956	12,748	1063.00	813.40	43,778.94	50,655.34

Special Field Studies -

Pine Infection Studies:

W.P.A. laborers were used for 2,912 man days during the period October 1 to December 31, 1937 in five of the Northeastern States (Maine, New Hampshire, Vermont, Massachusetts and New York) examining white pines in protected and unprotected areas to determine the effectiveness of control work and the damage being caused by blister rust. The white pines were examined for infection on 25 miles of road-wide strip lines and in 210 plots, comprising $228\frac{1}{2}$ acres in 93 townships. The data for these studies are being summarized at the Cambridge Office, and a special report will be prepared showing the results.

North Hudson, New York Experimental Area

From 2-6 W.P.A. workers assisted one of the Regional Office employees for 433 man days during the period May-November, 1937 in a re-examination of the numerous study plots on the North Hudson, New York experimental area. Due to lack of regular funds, this project could not have been undertaken during 1937 if the W.P.A. personnel had not been available.

State and Local Cooperation on W.P.A. Program

The states and local cooperators continued to give excellent support to the W.P.A. projects in this Region during 1937 as evidenced by a total expenditure of \$42,030.77 to supplement the W.P.A. funds. This amount includes contributions by eight states, two counties, 28 towns, and 68 individuals.

State funds were used chiefly for field supervision and checking, crew foremen, transportation, and a small amount for equipment. The county and town expenditures were mainly for transportation of W.P.A. crews. In several instances, the continuance of the W.P.A. control projects in these localities depended primarily on this cooperation, as adequate W.P.A. funds were not available for transportation. Cooperation by private land owners under the W.P.A. Program represents the cost of additional labor furnished by these individuals.

The W.P.A. projects in Maine and New Hampshire have also stimulated town cooperation under the Regular Cooperative Program. Town appropriations for control work in these two states during 1937 were approximately 29% more than the last year prior to the inauguration of the W.P.A. Program.

Tables 56 and 57 show the amount of state and local cooperative funds spent in conjunction with the W.P.A. Program during 1937 and the period 1935-1937, inclusive.

Table 56. - State and Local Cooperative Funds Spent in Conjunction
With W.P.A. Program in Northeastern States During 1937.

State	State Funds	County Funds		Town Funds		Individual Funds		Total
		No. Counties	Amount	No. Towns	Amount	No. Indiv.	Amount	
Me.	4,414.93	-	-	7	1,107.66	2	20.25	5,542.84
N.H.	199.14	1	99.50	7	317.00	-	-	615.64
Vt.	43.00	-	-	9	3,901.70	-	-	3,944.70
N.J.	1,132.38	-	-	5	2,070.37	62	160.40	3,363.15
R.I.	-	-	-	-	-	-	-	-
Conn.	119.53	-	-	-	-	-	-	119.53
N.Y.	27,041.98	1	16.00	-	-	2	254.40	27,312.36
Pa.	606.55	-	-	-	-	-	-	606.55
Del.	336.70	-	-	-	-	2	189.00	525.70
Totals	33,894.19	2	115.50	28	7,396.73	68	624.05	42,030.47

Table 57. - State and Local Cooperative Funds Spent in Conjunction
With W.P.A. Program in Northeastern States, 1935-1937, Inclusive.

State	State Funds	County Funds		Town Funds		Indiv. Funds		Total
		No. County Contributions	Amount	No. Town Contributions	Amount	No. Indiv.	Amount	
Me.	7,238.25	-	-	17	1,702.05	2	20.25	8,957.55
N.H.	2,058.94	3	1,086.50	15	664.75	-	-	3,810.19
Vt.	437.90	-	-	28	13,613.45	-	-	14,081.35
N.J.	4,329.85	-	-	20	8,943.07	238	1236.10	14,569.02
R.I.	1,114.98	-	-	-	-	-	-	1,114.98
Conn.	1,525.93	-	-	1	176.00	-	-	1,701.93
N.Y.	70,392.50	1	16.00	-	-	2	254.40	70,662.90
Pa.	941.86	-	-	-	-	-	-	941.86
Del.	336.70	-	-	-	-	4	252.00	589.70
Totals	88,403.91	4	1,102.50	81	25,099.32	246	1812.75	116,418.48

Appropriation 001089

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Penna.	Totals
Original allotment(1)	255,262.00	250,587.00	151,283.00	157,662.00	20,212.00	51,127.00	421,804.00	2,958.00	200,749.00	1,511,652.00
Reversion-6/10/36	31,500.00	35,000.00	22,500.00	20,000.00	3,000.00	6,000.00	56,500.00	-	32,000.00	206,500.00
Decrease-7/8/36	26,000.00	18,500.00	13,000.00	13,000.00	2,000.00	3,500.00	37,000.00	1,000.00	18,000.00	132,000.00
Reversion-10/20/37	199.51	199.56	98.28	400.00	54.48	100.68	174.31	64.51	75.59	1,366.51
Total funds-(001089)	249,562.49	233,887.44	141,684.72	150,269.00	19,157.52	48,526.32	402,129.69	3,893.49	186,673.41	1,435,784.00

(1) July 22, 1935.

Appropriation 201085

Original allotment(2)	53,600.00	34,100.00	16,200.00	23,500.00	4,500.00	2,300.00	91,700.00	800.00	24,500.00	251,200.00
Decrease-8/24/36	-	25,300.00	10,000.00	-	-	-	25,000.00	-	7,500.00	67,800.00
Reversion-8/24/36	3,300.00	-	-	-	-	1,600.00	-	-	-	4,900.00
Decrease-9/15/36	46,500.00	52,600.00	33,200.00	30,000.00	2,900.00	7,000.00	69,000.00	600.00	37,000.00	278,800.00
Decrease-11/27/36	-	-	-	5,000.00	1,000.00	1,000.00	10,000.00	-	1,000.00	18,000.00
Reversion-12/27/36	-	14,000.00	3,000.00	-	-	-	-	-	-	17,000.00
Reversion-12/31/36	-	-	3,340.00	-	-	-	4,000.00	-	-	7,340.00
Decrease-1/4/37	-	-	-	-	-	310.00	-	-	-	310.00
Decrease-1/15/37	-	-	3,000.00	-	-	-	-	-	-	3,000.00
Reversion-1/15/37	-	-	-	-	-	-	-	-	3,000.00	3,000.00
Decrease-2/13/37	8,100.00	5,600.00	4,400.00	2,100.00	-	900.00	16,920.00	-	4,000.00	42,020.00
Decrease-3/8/37	9,510.00	9,400.00	7,750.00	11,730.00	430.00	1,550.00	17,750.00	140.00	6,740.00	65,000.00
Decrease-5/12/37	10,690.00	10,020.00	6,240.00	5,820.00	430.00	1,250.00	14,960.00	140.00	5,450.00	55,000.00
Reversion-10/12/37	2,000.00	2,200.00	2,800.00	4,100.00	60.00	825.00	3,500.00	75.00	3,800.00	19,360.00
Total funds-(201085)	123,100.00	120,820.00	71,650.00	74,050.00	9,200.00	11,885.00	237,830.00	1,605.00	79,390.00	729,530.00

(2) July 28, 1936.

Appropriation 501082

Original allotment(3)	39,720.00	41,370.00	28,610.00	39,550.00	1,550.00	4,130.00	76,120.00	1,580.00	29,740.00	262,370.00
Decrease-10/1/37	-	-	-	-	-	-	-	260.00	-	260.00
Reversion-10/1/37	-	-	-	260.00	-	-	-	-	-	260.00
Reversion-11/10/37	-	-	-	1,000.00	-	-	-	-	-	1,000.00
Decrease-11/10/37	-	-	-	-	-	-	1,000.00	-	-	1,000.00
Decrease-12/6/37	-	-	1,000.00	-	-	-	-	-	-	1,000.00
Reversion-12/6/37	-	-	-	-	-	-	-	-	1,000.00	1,000.00
Reversion-12/17/37	-	200.00	-	100.00	-	-	200.00	-	1,400.00	1,900.00
Decrease-12/17/37	-	-	1,900.00	-	-	-	-	-	-	1,900.00
Total funds-(501082)	39,720.00	41,170.00	31,510.00	38,190.00	1,550.00	4,130.00	76,920.00	1,840.00	27,340.00	262,370.00

(3) July 10, 1937.

Grand Totals	412,382.49	395,877.44	144,294.84	262,509.00	29,907.52	64,541.32	716,879.69	7,338.49	293,403.41	2,447,684.00
001089	249,562.49	233,887.44	141,684.72	150,269.00	19,157.52	48,526.32	402,129.69	3,893.49	186,673.41	1,435,784.00
201085	123,100.00	120,820.00	71,650.00	74,050.00	9,200.00	11,885.00	237,830.00	1,605.00	79,390.00	729,530.00
501082	39,720.00	41,170.00	31,510.00	38,190.00	1,550.00	4,130.00	76,920.00	1,840.00	27,340.00	262,370.00

Table 59. -- Total W.P.A. Expenditures During Calendar Year 1937 For The Various Blister Rust Control Projects in The Northeastern States.

State	Supervision and B.R.C. Agent Activities	Eradication Assistants and Checkers	Ribes Eradication	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Totals
							Mapping	General	
Maine	8,715.87	-	55,554.90(1)	-	-	-	26,383.60	2,221.85	72,976.20
N.H.	9,836.53	29.38	33,322.49	-	21.12	779.37	27,363.95	1,000.22	72,353.05
Vt.	6,186.67	-	21,336.00	-	-	3,385.85	15,844.00	4,806.52	51,559.01
Mass.	7,994.88	-	21,609.26	543.85	134.59	7,621.67	16,445.51	551.28	54,901.01
N.I.	334.26	-	1,705.02	-	93.00	-	1,306.48	-	3,438.76
Conn.	1,601.04	-	2,261.07	-	12.24	-	4,225.74	678.90	8,778.20
N.Y.	17,398.08	90.24(2)	72,081.40(3)	-	132.07	14,784.26	28,737.30	3,427.13	156,650.43
N.J.	634.58	-	1,631.36	-	-	-	-	-	2,265.94
Penna.	8,414.40	-	24,362.33	-	477.31	3,118.85	8,852.77	-	45,225.68
Totals	61,116.51	119.62	213,863.85	543.85	870.33	29,690.00	129,159.35	12,685.88	448,049.17

(1) Includes \$19.00 W.P.A. funds expended under Regular Cooperative Program.

(2) Spent in conjunction with E.C.W. Program.

(3) Includes \$245.76 W.P.A. funds expended under S.C.S. Program.

An additional W.P.A. expenditure of \$15,983.06 was incurred at the Cambridge Regional Office during 1937. Of this amount, \$13,092.74 was for salaries and wages and \$2,890.52 for expenses.

Table 60. - Total W.P.A. Expenditures For The Various Blister Rust Control Projects in The Northeastern States During Period 1935-1937, Inclusive.

State	Supervision and B.R.C. Agent Activities	Eradication Assistants and Checkers	Ribes Eradication	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Total
							Mapping	General	
Maine	29,735.51	19,914.38	294,988.13(1)	-	-	-	64,951.25	2,221.83	411,811.10
N.H.	32,426.48	18,730.43	269,036.80	-	420.12	779.37	63,986.61	9,541.20	394,921.01
Vt.	22,571.47	12,371.02	158,263.43	-	218.27	4,924.65	40,203.94	4,806.52	243,359.30
Mass.	25,869.53	6,784.62(2)	140,667.17	2,256.60	957.49	7,621.67	34,281.05	2,418.41	213,856.54
R.I.	1,223.49	-	25,131.59	-	93.00	-	3,443.36	-	29,891.44
Conn.	3,819.70	2,383.15	45,792.44	-	171.59	-	8,700.56	3,574.74	64,242.18
N.Y.	60,584.53	21,849.57(3)	518,435.69(4)	-	1,225.32	52,334.40	76,880.38	3,427.13	714,737.02
N.J.	805.80	991.25	5,493.66	-	-	-	-	-	7,290.71
Penna.	22,621.89	16,953.23	212,408.47	-	715.33	3,118.85	37,421.26	-	292,239.03
Totals	197,658.40	98,977.65	1,670,217.38	2,256.60	3,801.12	48,778.94	329,868.41	25,789.83	2,377,348.33

- (1) Includes \$19.00 W.P.A. funds expended under Regular Cooperative Program.
(2) Includes \$551.50 W.P.A. funds expended under E.C.W. Program.
(3) Includes \$90.24 W.P.A. funds expended under E.C.W. Program.
(4) Includes \$245.76 W.P.A. funds expended under S.C.S. Program.

An additional W.P.A. expenditure of \$48,050.03 was incurred at the Cambridge Regional Office during the period 1935-1937, inclusive. Of this amount, \$37,341.02 was for salaries and wages and \$10,709.01 for expenses.

PERCENTAGE OF TOTAL WPA EXPENDITURES IN RESPECTIVE NORTHEASTERN STATES PAID FOR EACH PROJECT

LEGEND

- Black Current Elimination - Nursery Sanitation - Blister Rust Canker Elimination
- Eradication Assistants and Checkers
- General Supervision and Blister Rust Control Agent Activities
- Field Data (Pre-eradication surveys and plot studies)
- Ribes Eradication

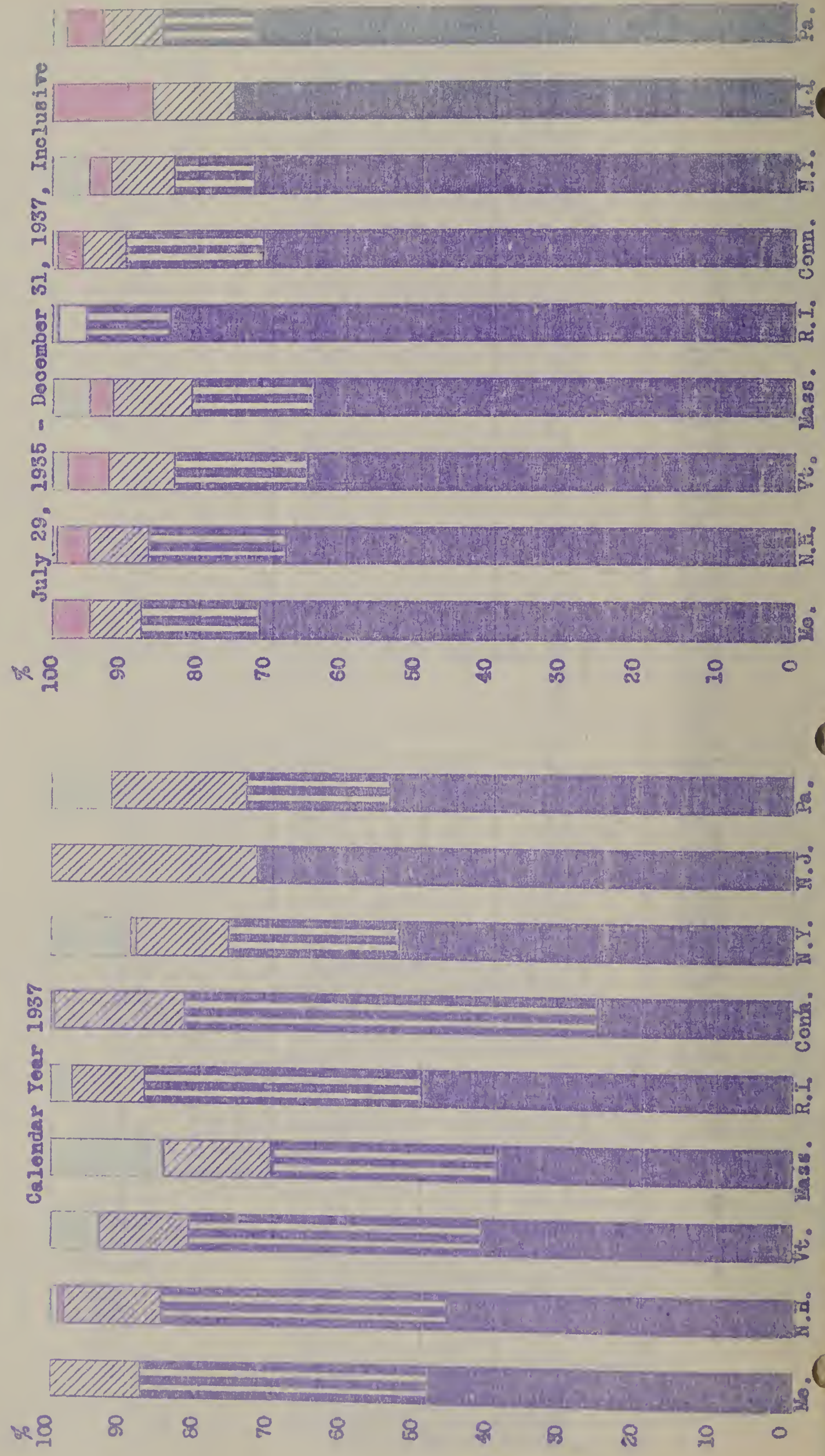


Table 61. - Total Expenditures, By Cooperating Agencies, Under W.P.A. Program in Northeastern States During Calendar Year 1937.

State	State Funds	Towns	Individuals	Counties	B.E. & P.Q.	W.P.A.	Totals
Maine	4,414.93	1,107.66	20.25	-	17.60	72,857.20(1)	78,417.64
N.H.	199.14	317.00	-	99.50	205.90	72,353.06	73,174.60
Vt.	43.00	3,901.70	-	-	-	51,559.04	55,503.74
Mass.	1,132.38	2,070.37	160.40	-	5.51	54,901.04	58,269.70
R.I.	-	-	-	-	-	3,438.76	3,438.76
Conn.	119.53	-	-	-	15.29	8,778.99	8,913.81
N.Y.	27,041.96	-	254.40	16.00	25.11	136,314.48(2)	163,651.95
N.J.	606.55	-	-	-	-	2,265.94	2,872.49
Penna.	336.70	-	189.00	-	4.00	45,225.66	45,755.36
Totals	33,894.19	7,396.73	624.05	115.50	273.41	447,694.17	489,998.05

(1) In addition, \$19.00 W.P.A. funds were expended for Ribes eradication project under "Regular Cooperative Program".

(2) In addition, \$90.24 W.P.A. funds were expended under the C.C.C. Program and \$245.76 under S.C.S. Program.

Table 62. - Total Cooperative Expenditures, By Projects, Under W.P.A. Program in Northeastern States During Calendar Year 1937.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Erad. Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Com-pen-sation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	8,715.87	40,334.64	588.30	-	-	-	-	26,557.00	2,221.83	76,417.64
N.H.	9,836.53	33,754.49	234.03	-	21.12	-	779.37	27,528.02	1,021.04	73,174.60
Vt.	6,186.67	23,845.00	-	-	-	-	3,786.35	16,339.20	5,546.52	55,503.74
Mass.	7,994.88	23,425.91	-	543.85	134.59	-	8,132.65	17,486.54	551.28	58,269.70
R.I.	334.26	1,705.02	-	-	93.00	-	-	1,306.48	-	3,438.76
Conn.	1,601.04	2,261.07	-	-	12.24	-	-	4,241.03	798.43	8,913.81
N.Y.	17,398.08	88,425.48	6,881.00	-	260.87	-	15,749.18	29,711.37	5,225.97	163,651.95
N.J.	634.58	1,631.36	606.55	-	-	-	-	-	-	2,872.49
Penna.	8,414.40	24,699.03	-	-	666.31	-	3,118.85	8,856.77	-	45,755.36
Totals	61,116.31	240,082.00	8,309.88	543.85	1,188.13	-	31,566.40	132,026.41	15,165.07	489,998.05

Note: Summary does not include expenditures for Cambridge Regional Office.

Table 63. - Total Expenditures, By Cooperating Agencies, Under W.P.A. Program in Northeastern States During Period 1935-1937, Inclusive.

State	State Funds	Towns	Individuals	Counties	B.E. & P.Q.	W.P.A.	Total
Maine	7,235.25	1,702.05	20.25	-	17.60	411,792.10(1)	420,767.25
N.H.	2,058.94	684.76	-	1,086.50	205.90	394,921.01	398,937.10
Vt.	467.90	13,613.45	-	-	-	243,359.30	257,440.65
Mass.	4,329.85	8,943.07	1,286.10	-	5.51	218,305.04(2)	232,869.57
R.I.	1,114.98	-	-	-	-	29,891.44	31,006.42
Conn.	1,525.93	176.00	-	-	690.29	64,242.18	66,634.40
N.Y.	70,392.50	-	254.40	16.00	25.11	714,401.02(3)	785,089.03
N.J.	941.86	-	-	-	-	7,290.71	8,232.57
Penna.	536.70	-	252.00	-	4.00	292,239.03	292,831.73
Totals	88,403.91	25,099.32	1,812.75	1,102.50	948.41	2,376,441.83	2,493,808.72

(1) In addition \$19.00 W.P.A. funds were expended in conjunction with Regular Cooperative Program.
 (2) \$551.50 " " " " C.C.C. Program
 (3) \$90.24 " " " " " and \$245.76 under S.C.S. Program.

Table 64. - Total Cooperative Expenditures, By Projects, Under W.P.A. Program in Northeastern States During Period 1935-1937, Inclusive.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	29,735.51	300,490.74	20,992.68	-	-	-	-	67,326.49	2,221.83	420,767.25
N.H.	32,426.48	271,061.53	20,518.58	-	420.12	-	779.57	64,169.00	9,562.02	398,937.10
Vt.	22,571.47	170,765.02	12,491.08	-	242.27	-	5,325.15	40,699.14	5,346.52	257,440.65
Mass.	23,869.53	151,238.94	6,233.12	2,499.50	1,395.97	225.60	8,132.65	36,855.85	2,418.41	232,869.57
R.I.	1,223.49	25,426.32	-	-	93.00	-	-	4,263.61	-	31,006.42
Conn.	3,819.70	46,033.97	2,783.10	-	171.59	-	-	9,740.55	4,085.49	66,634.40
N.Y.	60,584.53	572,914.27	33,089.09	-	1,405.08	-	33,299.32	78,570.77	5,225.97	785,089.03
N.J.	805.80	5,791.76	1,635.01	-	-	-	-	-	-	8,232.57
Penna.	22,621.89	212,745.17	15,953.23	-	967.33	-	3,118.85	37,425.26	-	292,831.73
Totals	197,658.40	1,756,467.72	113,695.89	2,499.50	4,695.36	225.60	50,655.34	339,050.67	28,860.24	2,493,808.72

Note: Summary does not include expenditures for Cambridge Regional Office.

Table 65. - W.P.A. Obligations For Salaries and Wages

Calendar Year 1937

State	Wages of Security - Wage Workers		Salaries of Appointees	Total Wages and Salaries
	Relief	Non-Relief		
Maine	61,113.66	-	7,358.12	68,471.78
N.H.	61,541.71	19.84	8,638.06	70,199.61
Vt.	45,048.12	-	3,749.88	48,798.00
Mass.	54,614.14	-	8,379.74	62,993.88
R.I.	2,814.10	-	333.32	3,147.42
Conn.	8,792.81	-	1,080.00	9,872.81
N.Y.	116,244.17	831.10	16,207.83	133,283.10
N.J.	1,631.38	-	633.30	2,264.68
Penna.	37,239.96	115.81	5,633.16	42,988.93
Totals	387,040.02	966.25	52,013.41	440,019.68
% Total	88.0	0.2	11.8	100.0

July 22, 1935 to December 31, 1937

Maine	315,440.55	29,265.98	37,128.24	381,834.75
N.H.	284,388.39	49,441.01	39,216.22	373,045.62
Vt.	189,834.72	14,344.42	23,701.43	227,880.57
Mass.	207,028.57	5,651.57	33,123.89	245,803.93
R.I.	25,757.67	2,427.54	1,166.62	29,351.83
Conn.	53,648.29	1,198.93	3,550.50	58,397.72
N.Y.	596,983.94	27,456.07	72,951.17	697,391.18
N.J.	5,441.91	-	1,536.05	6,977.96
Penna.	235,558.35	11,324.04	29,527.03	276,409.42
Totals	1,914,082.39	141,109.54	241,900.95	2,297,092.88
% Total	83.3	6.1	10.6	100.0

Table 66 , W.P.A. Obligations For Expenses

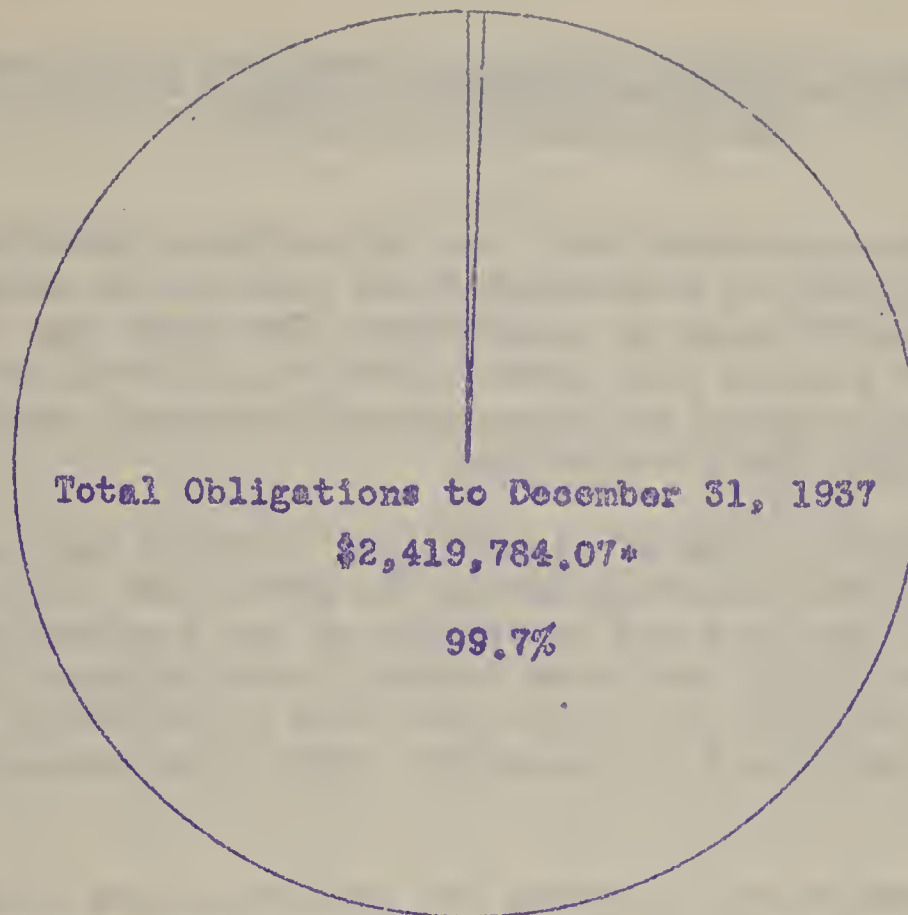
Calendar Year 1937

State	Purchases	Travel		Total
		Appointees	Crew Transportation	
Maine	1,389.86	371.09	2,643.47	4,404.42
N.H.	742.73	8.55	1,402.17	2,153.45
Vt.	1,153.09	467.95	1,140.00	2,761.04
Mass.	2,777.56	239.84	188.64	3,206.04
R.I.	.94	-	290.40	291.34
Conn.	427.38	429.52	49.28	906.18
N.Y.	2,062.98	446.70	857.70	3,367.38
N.J.	1.28	-	-	1.28
Penna.	947.34	157.55	1,104.57	2,209.46
Totals	9,503.16	2,121.20	7,676.23	19,300.59
% Total	49.2	11.0	39.8	100.0

July 22, 1935 to December 31, 1937

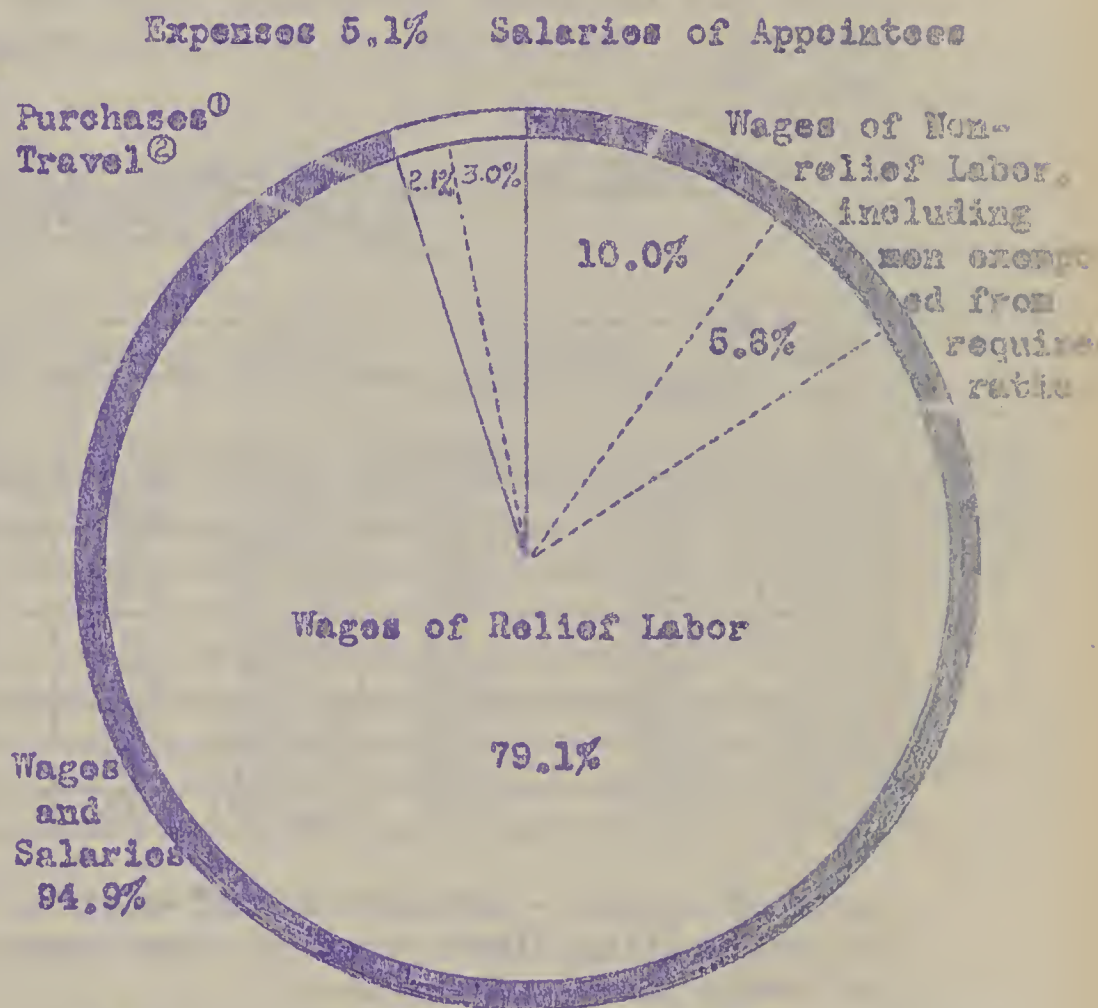
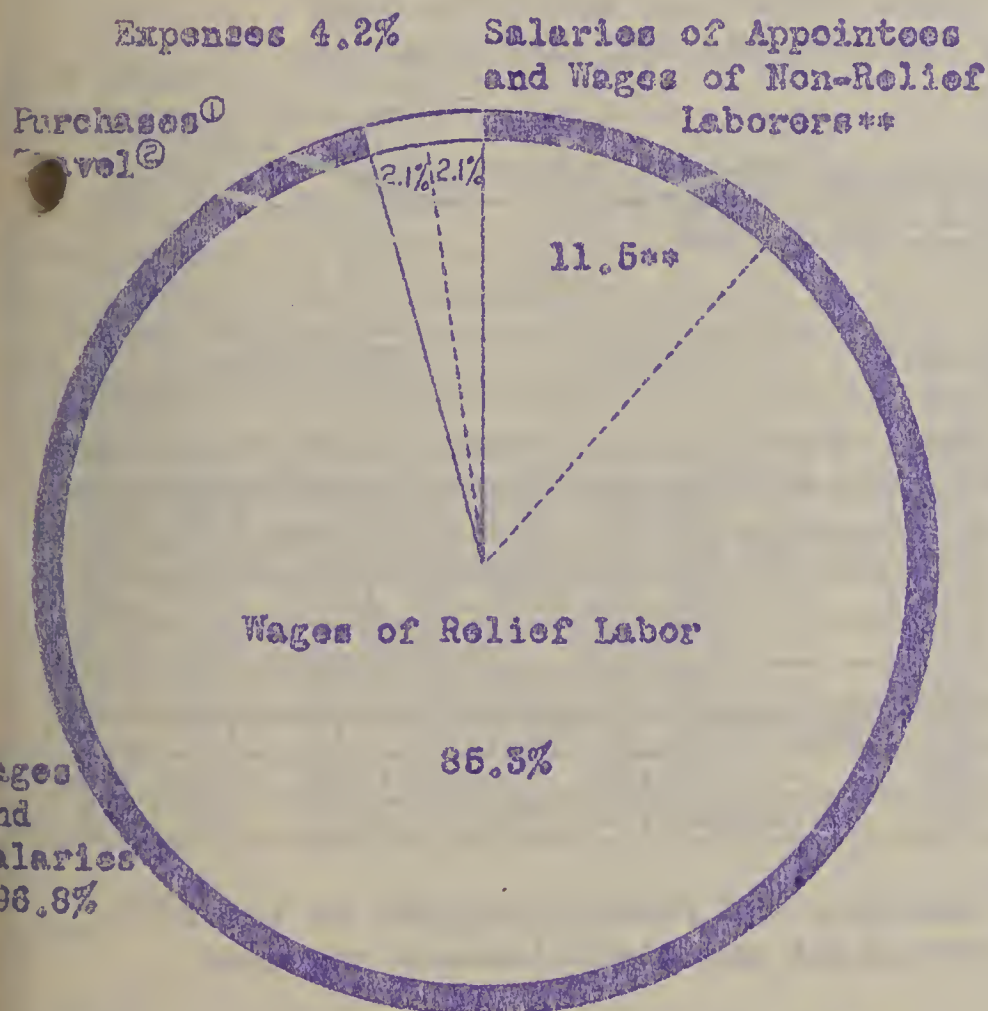
Maine	8,950.14	7,542.78	13,483.43	29,976.35
N.H.	5,132.06	5,393.09	11,350.24	21,875.39
Vt.	6,614.16	5,298.50	3,568.07	15,478.73
Mass.	12,163.54	3,059.13	265.78	15,488.45
R.I.	27.59	.50	511.52	539.61
Conn.	2,505.45	1,948.83	1,390.18	5,844.46
N.Y.	10,374.88	3,981.63	2,989.33	17,345.84
N.J.	131.23	181.52	-	312.75
Penna.	5,579.82	4,271.34	5,978.45	15,829.61
Totals	51,478.87	31,675.32	39,537.00	122,691.19
% Total	42.0	25.8	32.2	100.0

W.P.A. FUNDS FOR BLISTER RUST CONTROL IN NORTHEASTERN STATES



Unobligated Balance 0.3%
12/31/37
\$7,900.01

Total W.P.A. Allotments - 1935 to 1937, Inclusive - \$2,427,684.08*



Total Obligations - Calendar Year 1937
\$459,320.27

Total Obligations - 1935 to 1937, Inclusive
\$2,419,784.07

*In addition \$5,840.00 administrative funds were made available as of July 1, 1937 of which \$5,614.29 were obligated on December 31, 1937.

**Wages of non-relief laborers amount to only 0.2% of total.

①. Supplies, materials and equipment (1034 vouchers).

②. Travel, subsistence and miscellaneous (1012 vouchers). For all supervisory personnel - also all transportation for W.P.A. crews.

-94-

BLISTER RUST CONTROL ACTIVITIES UNDER THE A.R.A. PROGRAM
IN THE NORTHEASTERN STATES

Our Division cooperated with the Agricultural Resettlement Administration during 1937 in conducting Ribes eradication work on lands purchased by the administration in Connecticut, New York, and Pennsylvania. The state or district blister rust control leaders assisted the A.R.A. officials in formulating plans for these control projects, and gave technical supervision to the field activities.

In Connecticut, a crew of eight A.R.A. laborers was used on Ribes eradication work in three townships during the period May 10 to June 15, 1937. The project in New York was restricted to one township where an average of 10 men, including two state foremen, were employed from May 16 to August 15, 1937. Similar A.R.A. projects were conducted in three Pennsylvania townships from June 8 to August 30, 1937 by an average of 20 A.R.A. workers.

Table 67 summarizes by states the results of the 1937 Ribes eradication work under the A.R.A. Program. The average per acre cost of this work in all states during 1937 was only 49.5 cents as compared with \$1.19 in 1936. This reduction in cost was due primarily to closer supervision and increased efficiency since the Ribes factor was about the same each year. The results of the A.R.A. work for 1936 and 1937 are shown in Table 63.

Table 67. - Summary of Ribes Eradication Work Conducted Under A.R.A. Program
In Northeastern States During 1937.

State	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Cost			Per Acre		
		Total Worked	Pine Protected	Wild	Cult.		State	A.R.A.	Total	Cost	Ribes	Man Days
Conn.	Re-Erad.	1929	183	4,290	110	145	-	727.90	727.90	.377	2.2	.08
N.Y.	Initial	830	415	28,569	34	301	305.80	740.00	1045.80	1.26	34.4	.36
	Initial	2050	145	4,014	872	246	-	1001.34	1001.34	.488	2.0	.12
Pa.	Re-Erad.	1152	85	3,157	-	108	-	176.72	176.72	.153	2.7	.09
	Total	3202	230	7,171	872	354	-	1178.06	1178.06	.368	2.2	.11
Totals	Initial	2880	560	32,583	906	547	305.80	1741.34	2047.14	.711	11.3	.19
	Re-Erad.	3081	268	7,447	110	253	-	904.62	904.62	.294	2.4	.08
	Totals	5961	828	40,030	1016	800	305.80	2645.96	2951.76	.495	6.7	.13

Basis of costs: - Includes actual cost of laborers and foremen engaged in locating and pulling Ribes; cost of crew transportation; and miscellaneous expenses for trail paper, picks, etc.

Table 63 - Summary of Ribes Eradication Work Conducted Under A.R.A. Program
In Northeastern States During Period 1936-1937, Inclusive.

By Years

Year	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Cost			Per Acre		
		Total Worked	Pine Protected	Wild	Cult.		State	A.R.A.	Total	Cost	Ribes	Man Days
1936	Initial	7,759	2,683	79,908	42	3017	-	10,553.58	10,553.58	1.36	10.3	.39
	Re-Erad.	2,633	850	6,332	-	519	-	1,858.40	1,858.40	.706	2.4	.20
	Total	10,392	3,533	86,240	42	3536	-	12,411.98	12,411.98	1.19	8.3	.34
1937	Initial	2,880	560	32,583	906	547	305.80	1,741.34	2,047.14	.711	11.3	.19
	Re-Erad.	3,081	268	7,447	110	253	-	904.62	904.62	.294	2.4	.08
	Total	5,961	828	40,030	1016	800	305.80	2,645.96	2,951.76	.495	6.7	.13
Totals	Initial	10,639	3,243	112,491	948	3564	305.80	12,294.92	12,600.72	1.18	10.6	.33
	Re-Erad.	5,714	1,118	13,779	110	772	-	2,763.02	2,763.02	.484	2.4	.14
	Total	16,353	4,361	126,270	1058	4336	305.80	15,057.94	15,363.74	.940	7.7	.27

By States

N.I.	Re-Erad.	2,369	790	6,177	-	465	-	1,640.00	1,640.00	.692	2.6	.20
	Initial	1,214	182	6,337	2	111	-	424.81	424.81	.350	5.2	.09
Cal.	Re-Erad.	1,929	183	4,290	110	145	-	727.90	727.90	.377	2.2	.08
	Total	3,143	365	10,627	112	256	-	1,152.71	1,152.71	.367	3.4	.03
N.Y.	Initial	3,659	2,301	67,508	64	2509	305.80	8,010.58	8,316.38	2.27	18.4	.69
	Re-Erad.	5,766	760	38,646	882	944	-	3,859.53	3,859.53	.669	6.7	.16
Penn.	Re-Erad.	1,416	145	3,312	-	162	-	395.12	395.12	.279	2.3	.11
	Total	7,182	905	41,958	882	1106	-	4,254.65	4,254.65	.593	5.8	.15
Totals	Initial	10,639	3,243	112,491	948	3564	305.80	12,294.92	12,600.72	1.18	10.6	.33
	Re-Erad.	5,714	1,118	13,779	110	772	-	2,763.02	2,763.02	.484	2.4	.14
	Total	16,353	4,361	126,270	1058	4336	305.80	15,057.94	15,363.74	.940	7.7	.27

Basis of costs: - Same as Table 67.

BLISTER RUST CONTROL ACTIVITIES UNDER STATE AND
LOCAL W.P.A. PROGRAMS

The special blister rust control project under the State W.P.A. Program in Connecticut was continued throughout the calendar year 1937. The purpose of this special project was to map the white pine areas and obtain information on blister rust infection conditions in southern Connecticut where very little control work has been performed in previous years. Such data were desired in order to develop a blister rust control policy and intelligently plan future control work. In addition to the mapping and pine infection surveys, a considerable amount of Ribes eradication work was performed during 1937 in 14 townships where it was not practicable to do the work under any of the other programs. A total of 60 W.P.A. workers were employed on this special project in Connecticut under the direction of four district supervisors. In addition, one state supervisor was employed to give direct supervision to the entire project and handle all administrative matters. The state blister rust control leader cooperated in developing plans for the project and giving technical supervision to the field activities.

One of the New York district blister rust control leaders also gave technical supervision to a local W.P.A. project, which was sponsored by the city officials of Little Falls, N. Y. A crew of 7 W.P.A. workers was employed on Ribes eradication work in that township during the period August 2 to 26, 1937. An experienced crew foreman was provided by the local water board.

Table 69 - Summary of Ribes Eradication Work Conducted Under State and Local
W.P.A. Programs in Connecticut and New York During 1937.

State	Type of Erad.	Total Acreage		Ribes Pulled		Total Man Days	Cost				Per Acre		
		Worked	Pine Protected	Wild	Cult		Local Coop.	State	W.P.A.	Total	Cost	Ribes	Man Days
Conn.	Initial	1,481	288	690	68	278	188.00	-	1,154.08	1,342.08	.906	0.5	.19
	Re-Erad.	26,420	4258	30,098	301	1767	36.00	24.05	8,426.08	8,486.13	.321	1.1	.07
	Total	27,901	4546	30,788	369	2045	224.00	24.05	9,580.16	9,828.21	.352	1.1	.07
N. Y.	Re-Erad.	135	90	12,915	-	104	80.25	-	324.90	405.15	3.00	95.7	.77
	Initial	1,481	288	690	68	278	188.00	-	1,154.08	1,342.08	.906	0.5	.19
	Re-Erad.	26,555	4348	43,013	301	1871	116.25	24.05	8,750.98	8,891.28	.335	1.6	.07
Totals	Total	28,036	4636	43,703	369	2149	304.25	24.05	9,905.06	10,233.36	.365	1.6	.08

In addition, the Connecticut supervisor spent 75 days on the project at a cost of \$426.52.

Table 70 - Summary of Ribes Eradication Work Conducted Under State and Local
W.P.A. Programs in Connecticut and New York During 1936 and 1937.

State	Type of Erad.	Total Acreage		Ribes Pulled		Total Man Days	Cost				Per Acre		
		Worked	Pine Protected	Wild	Cult		Local Coop.	State	W.P.A.	Total	Cost	Ribes	Man Days
Conn.	Initial	3,470	503	2,086	165	743	534.00	32.35	2,993.06	3,559.41	1.03	0.6	.21
	Re-Erad.	26,420	4258	30,098	301	1767	36.00	24.05	8,426.08	8,486.13	.321	1.1	.07
	Total	29,890	4761	32,184	466	2510	570.00	56.40	11,419.14	12,045.54	.403	1.1	.08
N. Y.	Re-Erad.	135	90	12,915	-	104	80.25	-	324.90	405.15	3.00	95.7	.77
	Initial	3,470	503	2,086	165	743	534.00	32.35	2,993.06	3,559.41	1.03	0.6	.21
	Re-Erad.	26,555	4348	43,013	301	1871	116.25	24.05	8,750.98	8,891.28	.335	1.6	.07
Totals	Total	30,025	4851	45,099	466	2614	650.25	56.40	11,744.04	12,450.69	.415	1.5	.09

Nursery Sanitation

Seven laborers were used for 243 man days on nursery sanitation work under the State W.P.A. Program in Connecticut during the period May 20 to August 19, 1937. The environs of five nurseries were re-examined for Ribes, a total of 335 wild Ribes being destroyed on 1798 acres. This project cost \$1184.20, all of which was paid from state W.P.A. funds.

Pine and Control Area Mapping

Pre-eradication survey work was conducted in 47 townships during 1937 under the State W.P.A. Program in Connecticut. A total of 82,040 acres was mapped in detail and an additional 114,900 acres was examined but not mapped due to lack of sufficient pine to justify the cost of control work. In addition, 204½ miles of control area boundary lines were painted in the field. A total of 4,636 man days was spent on the mapping work, including 1208 man days consumed on office work preparing maps and records. The total cost of this mapping project was \$25,768.16, all of which was paid from W.P.A. funds.

Table 71 - Summary of Pine and Control Area Mapping Under State W.P.A. Program
In Connecticut, 1936 - 1937, Inclusive.

Year	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost			
						Towns	State	W.P.A.	Total
1936	5	36,706	-	-	580	40.70	31.68	2,851.57	2,923.95
1937	47	82,040	114,900	204½	4,636	-	-	25,768.16	25,768.16
Total	-	118,746	114,900	204½	5,216	40.70	31.68	28,619.73	28,692.11

Pine Infection Survey

The pine infection survey was the major field project under the State W.P.A. Program in Connecticut during 1936. This phase of the program was continued in 27 townships up to May 15, 1937, but suspended after that date as it was decided that adequate data had been obtained. A separate report on the results of this entire study will be submitted by the state blister rust control leader.

Table 72 - Total Cooperative Expenditures, By Projects, Under State and Local W.P.A. Programs In Northeastern States During 1936 and 1937.

State	Year	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Field Data		Total
					Mapping	General	
Conn.	1936	2,217.33	-	-	2,923.95	37,105.84	42,247.12
	1937	9,828.21	426.52	1184.20	25,768.16	13,505.50	50,712.59
	Total	12,045.54	426.52	1184.20	28,692.11	50,611.34	92,959.71
N.Y.	1937	405.15	2.40	-	-	-	407.55
Totals	1936	2,217.33	-	-	2,923.95	37,105.84	42,247.12
	1937	10,233.36	428.92	1184.20	25,768.16	13,505.50	51,120.14
	Totals	12,450.69	428.92	1184.20	28,692.11	50,611.34	93,367.26

Table 73 - Total Expenditures, By Cooperating Agencies, Under State and Local W.P.A. Programs In Northeastern States During 1936 and 1937.

State	Year	Individuals	Towns	State	W.P.A.	Total
Conn.	1936	346.00	550.00	460.40	40,890.72	42,247.12
	1937	224.00	420.00	577.57	49,491.02	50,712.59
	Total	570.00	970.00	1037.97	90,381.74	92,959.71
N.Y.	1937	80.25	-	2.40	324.90	407.55
Totals	1936	346.00	550.00	460.40	40,890.72	42,247.12
	1937	304.25	420.00	579.97	49,815.92	51,120.14
	Total	650.25	970.00	1040.37	90,706.64	93,367.26

BLISTER RUST CONTROL ACTIVITIES UNDER S.C.S. PROGRAM
IN NORTHEASTERN STATES

Control projects were conducted in cooperation with the Soil Conservation Service during 1937 in New York, New Jersey and Pennsylvania. In New York, an average of 12 enlisted men from one S.C.S. camp were used on Ribes eradication work in two townships during the period June 1 to September 30. One W.P.A. employee and two state foremen were assigned to direct the crew activities, and the state also cooperated by furnishing a technical foreman for the project. The work in New Jersey was restricted to a re-examination of the environs of Soil Conservation Service nursery at New Brunswick, which was given initial protection in 1936. The state blister rust control leader in New Jersey spent seven days on this project during the period April 13 to May 12. Three S.C.S. laborers assisted him in removing the Ribes. In Pennsylvania, an average of 22 enlisted S.C.S. laborers and one technical foreman were assigned to Ribes eradication work from one camp. Control work was conducted in 3 townships during the period July 26 to September 3.

Table 74 - Summary of Ribes Eradication Work Performed Under S.C.S.
Program In Northeastern States During 1937.
(All initial control work)

State	Acreage		Ribes Pulled		Total Man Days	Cost				Per Acre		
	Total Worked	Pine Protected	Wild	Cult.		State	W.P.A.	S.C.S.	Total	Cost	Ribes	Man Days
N.Y.	2,339	1,169	111,978	45	1325	603.04	245.76	1961.62	2810.42	1.20	47.9	.57
Penna.	582	37	37,346	-	649	-	-	1008.90	1008.90	1.73	64.2	1.12
Totals	2,921	1,206	149,324	45	1974	603.04	245.76	2970.52	3819.32	1.31	51.1	.66

Basis of costs: - Includes total time of enlisted personnel figured at rate of \$1.50 per eight hour man day, actual cost of other employees assigned to project, and cost of crew transportation.

Supervision of Ribes Eradication Work - S.C.S. Program

In New York, one state employee was assigned as a technical foreman for the S.C.S. project for 114 man days at a total cost of \$547.20. The work in Pennsylvania was directed by an S.C.S. technical foreman; a charge of \$150.00 was made for the 25 days this supervisor was employed on the control project. Representatives of our Division assisted the S.C.S. officials in developing plans for these projects in New York and Pennsylvania and gave technical supervision to the field activities.

Table 75 - Summary of Ribes Eradication Work Conducted Under S.C.S. Program
In Northeastern States During 1936 and 1937.

By Years

Year	Type of Erad.	Total Acreage		Ribes Pulled		Total Man Days	Cost				Per Acre		
		Worked	Pine Protected	Wild	Cult.		State	W.P.A.	S.C.S.	Total	Cost	Ribes	Man Day
1936	Initial	4,112	143	67,793	155	1632	-	-	2529.65	2529.65	.615	16.5	.4
	Re-Erad.	214	26	2,190	-	410	-	-	635.73	635.73	2.97	10.2	1.9
	Total	4,326	169	69,983	155	2042	-	-	3165.38	3165.38	.732	16.2	.4
1937	Initial	2,921	1206	149,324	45	1974	603.04	245.76	2970.52	3819.32	1.31	51.1	.6
	Re-Erad.	214	26	2,190	-	410	-	-	635.73	635.73	2.97	10.2	1.9
Totals	Total	7,247	1375	219,307	200	4016	603.04	245.76	6135.90	6984.70	.964	30.3	.5

By States

N.Y.	Initial	2,339	1169	111,978	45	1325	603.04	245.76	1961.62	2810.42	1.20	47.9	.57
Penn.	Initial	4,694	180	105,139	155	2281	-	-	3538.55	3538.55	.754	22.4	.49
	Re-Erad.	214	26	2,190	-	410	-	-	635.73	635.73	2.97	10.2	1.92
	Total	4,908	206	107,329	155	2691	-	-	4174.28	4174.28	.851	21.9	.55
Totals	Initial	7,033	1349	217,117	200	3606	603.04	245.76	5500.17	6348.97	.903	30.9	.51
	Re-Erad.	214	26	2,190	-	410	-	-	635.73	635.73	2.97	10.2	1.92
	Total	7,247	1375	219,307	200	4016	603.04	245.76	6135.90	6984.70	.964	30.3	.55

Basis of costs: - Same as Table 74.

Nursery Sanitation - S.C.S. Program

A re-examination of the environs of the S.C.S. nursery at New Brunswick, N.J. during 1937 resulted in 250 wild Ribes and 146 cultivated bushes being removed from the 250 acres worked. This project required $8\frac{1}{2}$ man days labor by the state blister rust control leader and 3 S.C.S. employees at a cost of \$42.00 to the state, \$29.54 to the Bureau of Entomology and Plant Quarantine and \$2.25 to the Soil Conservation Service. The cost of the S.C.S. employees' time was figured at the rate of \$1.50 per eight hour man day.

Table 76 - Summary of Nursery Sanitation Work Conducted Under S.C.S. Program
In Northeastern States During 1936 and 1937.

(Soil Conservation nursery at New Brunswick, N. J.)

Year	Type of Erad.	Total Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre		
			Wild	Cult.		State	B.E.&P.Q.	S.C.S.	Total	Cost	Ribes	Man Days
1936	Initial	195	1538	65	102	77.25	-	228.00	305.25	1.57	7.9	.52
1937	Re-Erad.	250	250	146	$8\frac{1}{2}$	42.00	29.54	2.25	73.79	.295	1.0	.03
Total	-	445	1788	211	$110\frac{1}{2}$	119.25	29.54	230.25	379.04	.852	4.0	.25

Table 77. - Total Expenditures, By Cooperating Agencies, Under
S.C.S. Program in Northeastern States During 1936 and 1937

State	Year	State Funds	B.E. & P.Q.	W.P.A.	S.C.S.	Total
N.Y.	1937	1,150.24	-	245.78	1,961.62	3,357.62
	1936	77.25	-	-	228.00	305.25
N.J.	1937	42.00	29.54	-	2.25	73.79
	Total	119.25	29.54	-	230.25	379.04
Penna.	1936	149.60	-	-	4,095.38	4,244.98
	1937	-	-	-	1,158.90	1,158.90
	Total	149.60	-	-	5,254.28	5,403.88
Totals	1936	226.85	-	-	4,323.38	4,550.23
	1937	1,192.24	29.54	245.78	3,122.77	4,590.31
	Total	1,419.09	29.54	245.78	7,446.15	9,140.54

Table 78. - Total Cooperative Expenditures, By Projects, Under
S.C.S. Program in Northeastern States During 1936 and 1937.

State	Year	Ribes Eradication	Eradication Assistants and Checkers	Nursery Sanitation	Total
N.Y.	1937	2,810.42	547.20	-	3,357.62
	1936	-	-	305.25	305.25
N.J.	1937	-	-	73.79	73.79
	Total	-	-	379.04	379.04
Penna.	1936	3,165.38	1,079.60	-	4,244.98
	1937	1,008.90	150.00	-	1,158.90
	Total	4,174.28	1,229.60	-	5,403.88
Totals	1936	3,165.38	1,079.60	305.25	4,550.23
	1937	3,819.32	697.20	73.79	4,590.31
	Total	6,984.70	1,776.80	379.04	9,140.54

BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS
UNDER ALL PROGRAMS IN THE NORTHEASTERN STATES
DURING 1937.

Table 79 Personnel Employed on Blister Rust Control Work
In Northeastern States During 1937.

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Penna.	Totals	
State Leaders	1	1	1	1	1	1	1	1	1	9	
District Leaders	4	5	3	4	-	(1) 1	8	-	(3) 5	30	
Supervisors, Technical Foremen, and Checkers	Regular	4	-	-	-	-	3	-	6	13	
	C.C.C.	19	9	8	2	5	9	73	-	62	187
	Federal W.P.A.	4	3	-	-	-	-	17	1	-	25
	State & Local WPA	-	-	-	-	-	5	1	-	-	6
	S.C.S.	-	-	-	-	-	-	1	-	1	2
	Total	27	12	8	2	5	14	95	1	69	233
Crew Men (Includes crew fore- men, scouts, and laborers)	Regular	157	400	12	27	-	-	40	-	38	674
	C.C.C.	152	69	101	29	84	106	902	-	987	2430
	Federal W.P.A.	301	320	277	(2) 150	11	26	430	7	165	1687
	State & Local WPA	-	-	-	-	-	60	8	-	-	68
	S.C.S.	-	-	-	-	-	-	14	-	22	36
	A.R.A.	-	-	-	-	-	8	10	-	20	38
	Total	610	789	390	206	95	200	1404	7	1232	4933
Total	642	807	402	213	101	216	1508	9	1307	5205	

(1) Temporary district leader.

(2) Includes 10 clerks at Regional Office.

(3) Includes two state agents who assist state leader on supervisory work.

The number of men actually engaged on blister rust control work was greater than the number indicated in the above table since the figures for the C.C.C. onlisted personnel are based on the average number of men employed during the period involved. During 1937, a total of 268 individual owners paid for control work on their properties or provided necessary labor. Several hundred other persons permitted the destruction of their cultivated bushes without compensation and hundreds of others gave general support to the control program.

Table 80-SUMMARY OF RIBES ERADICATION WORK CONDUCTED UNDER ALL PROGRAMS
IN NORTHEASTERN STATES DURING 1937.

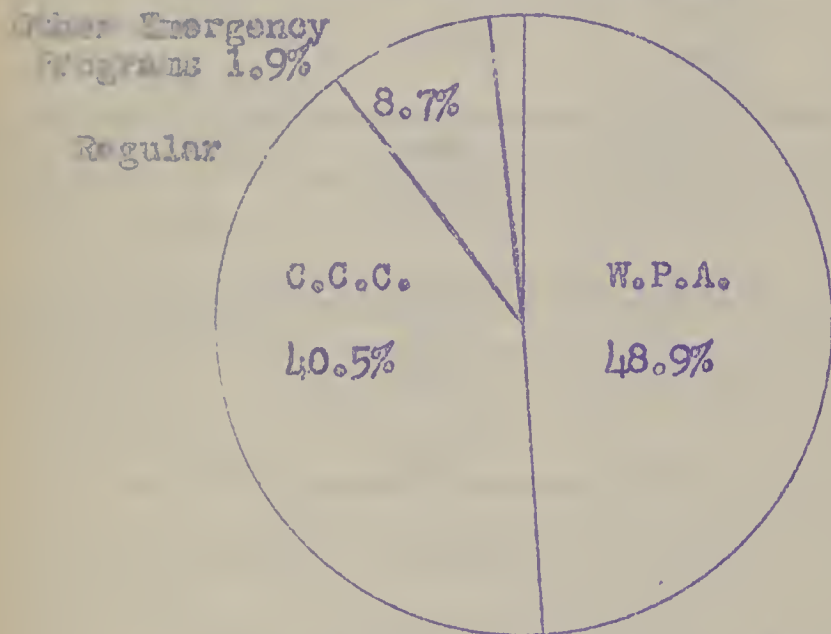
(Excludes nursery sanitation and cultivated black currant elimination)

Program		Regular Cooperative	C.C.C.	Federal W.P.A.	State and Local W.P.A.	A.R.A.	S.C.S.	Total
Total Roses killed	Initial	32,777	152,782	184,382	1,481	2,880	2,921	377,223
	Re-Erad.	50,816	131,959	127,088	26,555	3,081	-	339,499
	Total	83,593	284,741	311,470	28,036	5,961	2,921	716,722
Total Roses not killed	Initial	16,102	68,823	92,481	288	560	1,206	179,460
	Re-Erad.	26,750	41,660	61,182	4,348	268	-	134,208
	Total	42,852	110,483	153,663	4,636	828	1,206	313,668
Total Ribes pulled		1,721,703	6,509,237	8,939,253	43,703	40,030	149,324	17,403,250
Total Ribes pulled		2,022	11,154	6,520	369	1,016	45	21,126
Total man days		11,235	136,373	60,182	2,149	800	1,974	212,713
Total Cost	Individuals	3,875.68	-	195.05	304.25	-	-	4,374.98
	Towns	20,275.87	-	4,688.53	-	-	-	24,964.40
	Counties	734.25	-	115.50	-	-	-	849.75
	State	16,360.15	485.00	21,483.85	24.05	305.80	603.04	39,261.99
	C.C.C.	-	230,541.19	-	-	-	-	230,541.19
	Federal W.P.A.	19.00	-	213,599.07	-	-	-	213,618.07
	State & Local WPA	-	-	-	9,905.06	-	-	9,905.06
	B.E.&P.Q.	63.05	-	-	-	-	-	63.05
	A.R.A.	-	-	-	-	2,645.96	-	2,645.96
	S.C.S.	-	-	-	-	-	3,216.28	3,216.28
	Total	41,328.00	231,026.19	240,082.00	10,233.36	2,951.76	3,819.32	529,448.63
	Cost	.494	.811	.771	.365	.495	1.31	3.25
	Ribes	20.6	22.9	28.7	1.6	6.7	51.1	101.6
	Man Days	.13	.48	.19	.08	.13	.68	1.69

RIBES ERADICATION PERCENTAGE UNDER EACH PROGRAM IN THE
NORTHEASTERN STATES DURING CALENDAR YEAR 1957.

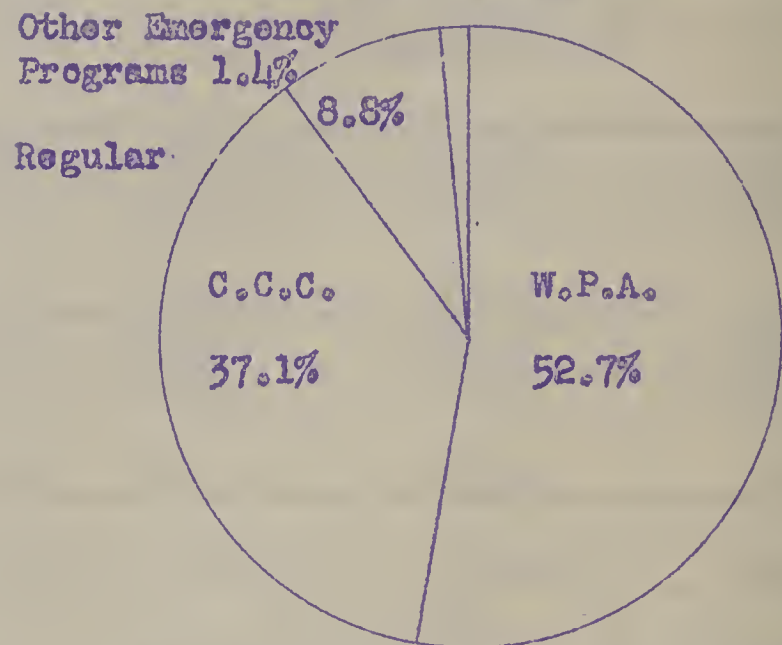
(Excludes Nursery Sanitation and Cultivated Black Current Elimination)

Percentage of Total Acreage
Cleared of Ribes
Initial Eradication



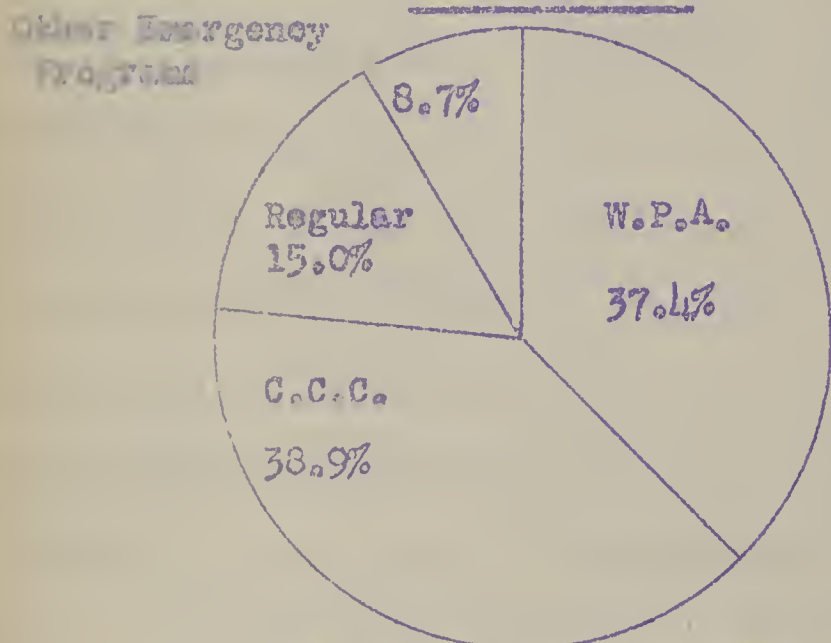
Total Acreage Worked - 337,223

Percentage of Total
Wild Ribes Destroyed
Initial Eradication



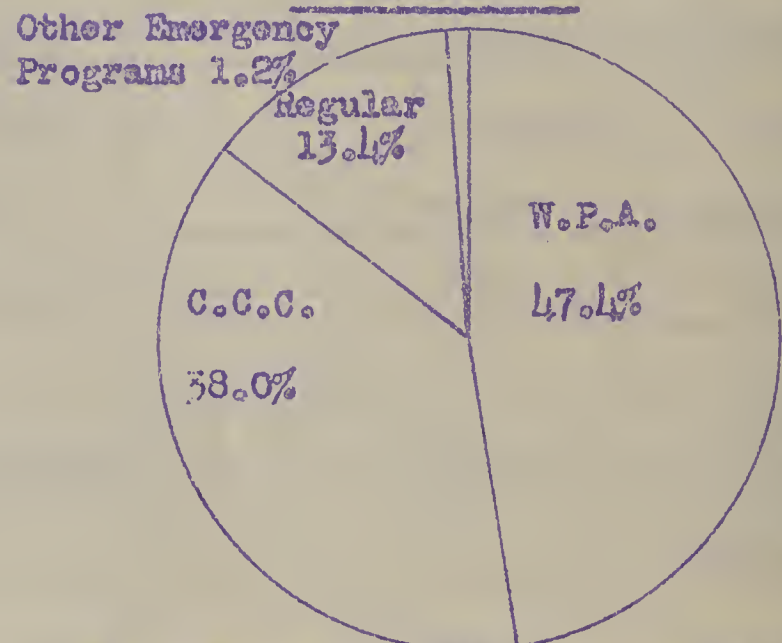
Total Number of Ribes - 13,107,878

Reeradication



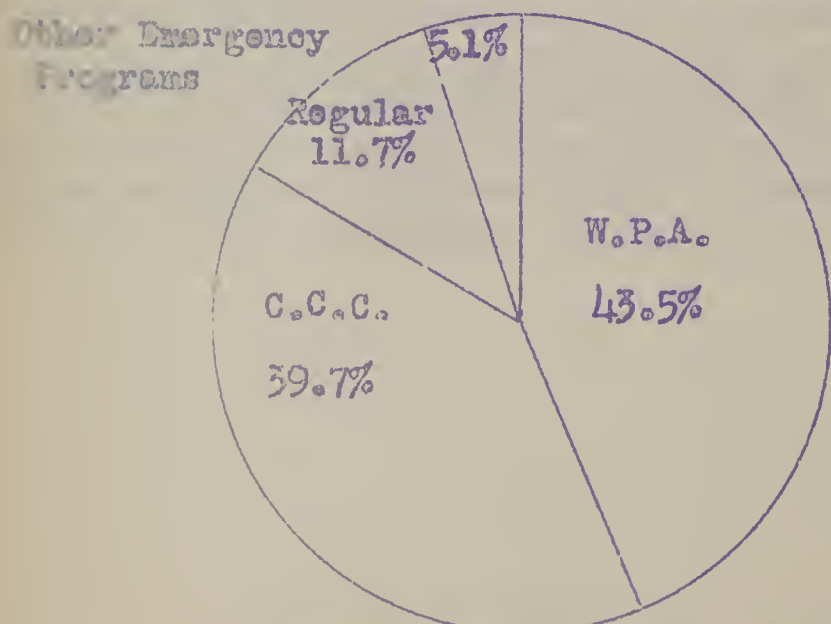
Total Acreage Worked - 339,499

Reeradication



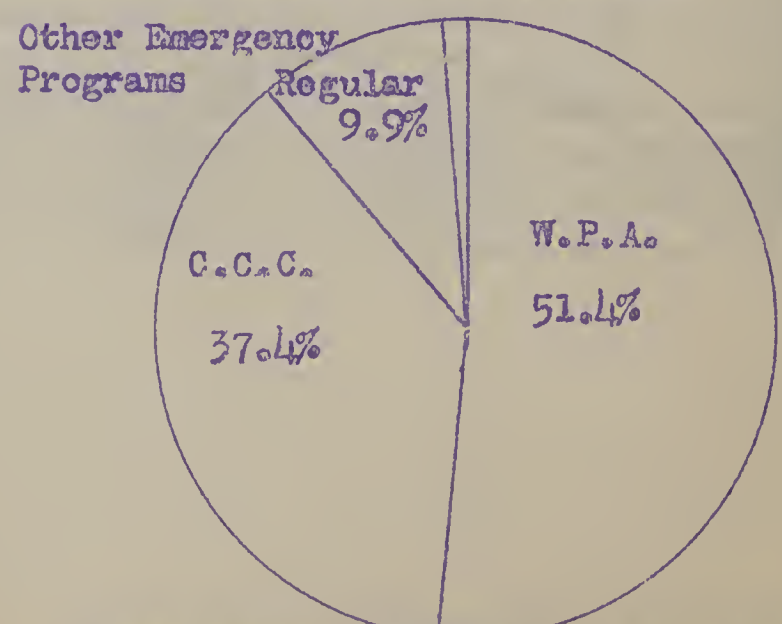
Total Number of Ribes - 4,295,372

Initial & Reeradication



Total Acreage Worked - 716,722

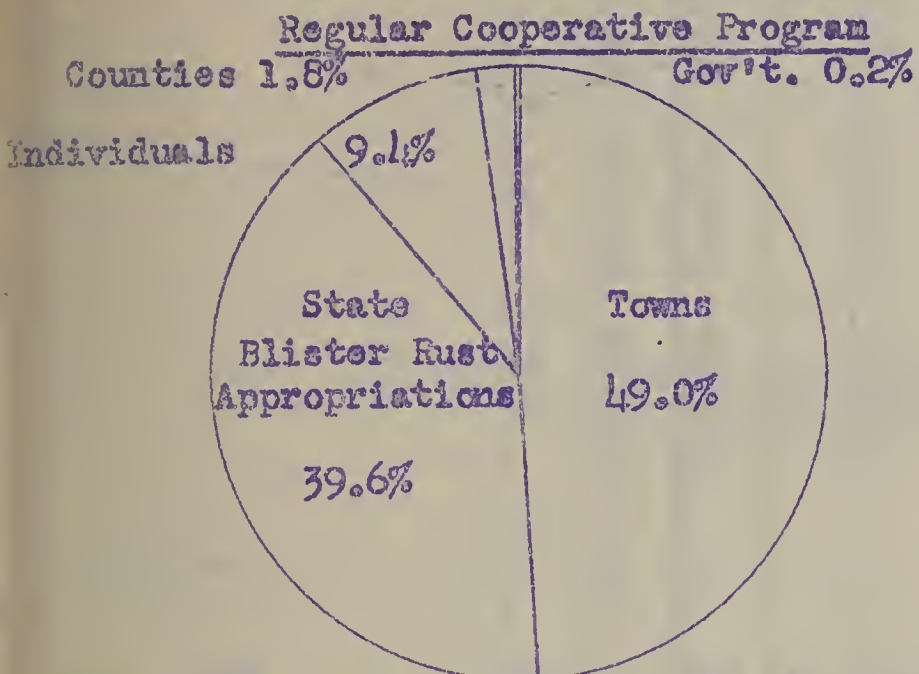
Initial & Reeradication



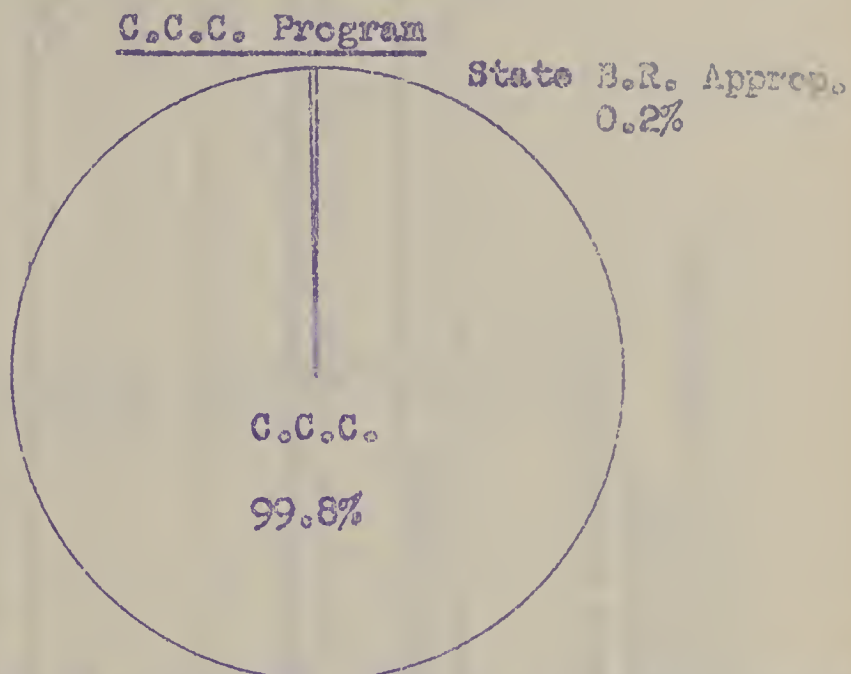
Total Number of Ribes - 17,403,250

SOURCE OF TOTAL FUNDS SPENT ON PROJECT "RIBES ERADICATION"
UNDER EACH PROGRAM IN NORTHEASTERN STATES - CALENDAR YEAR 1937.

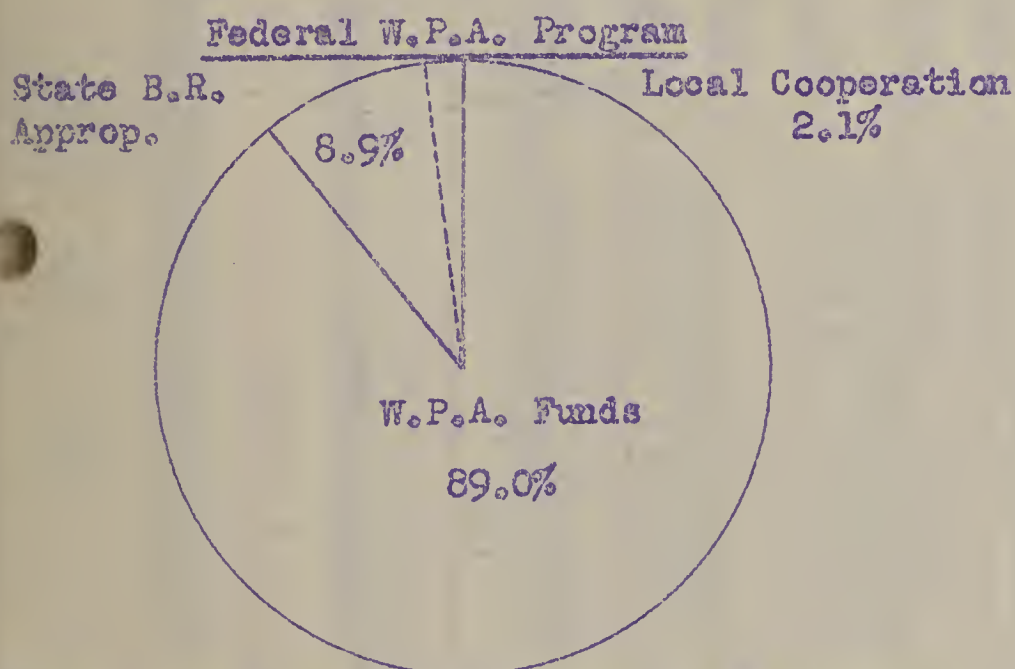
(Excludes Nursery Sanitation and Cultivated Black Current Elimination)



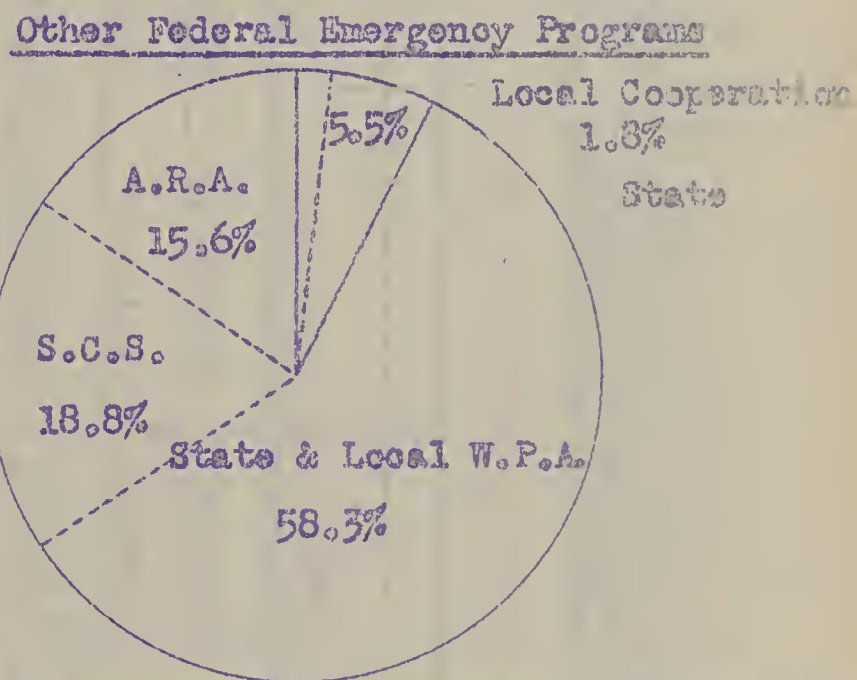
Total Cost of Ribes Eradication - \$41,328.00



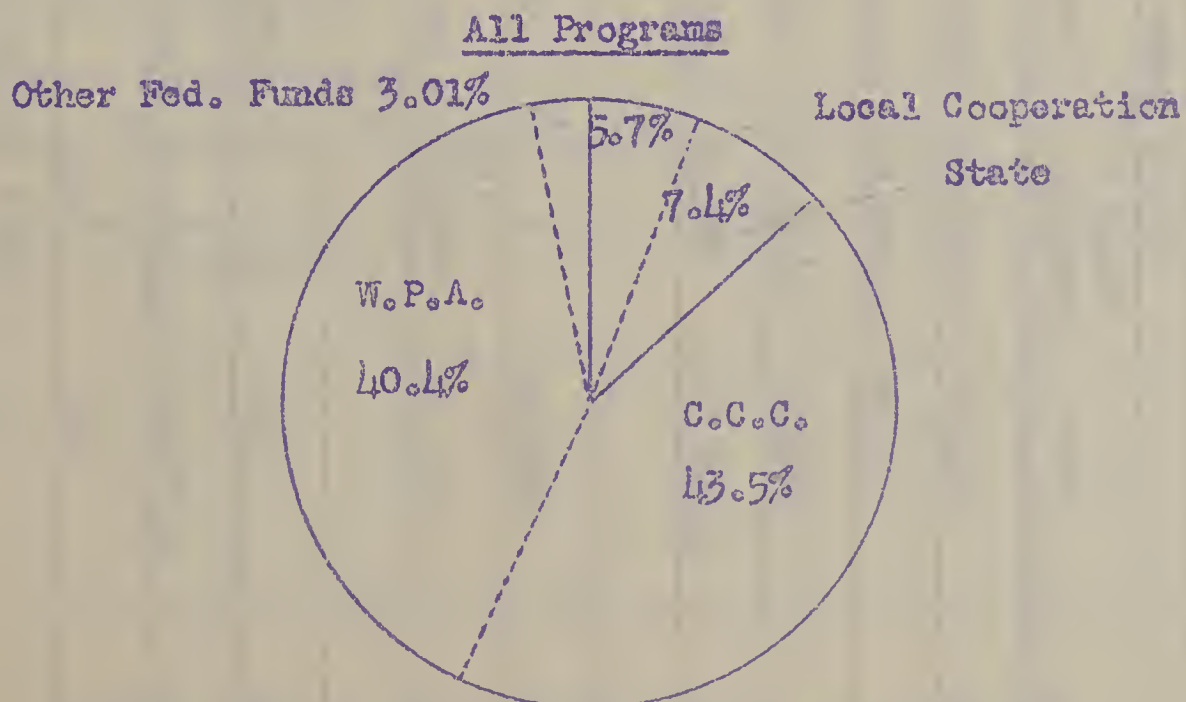
Total Cost of Ribes Eradication - \$231,026.19



Total Cost of Ribes Eradication - \$240,082.00



Total Cost of Ribes Eradication - \$17,004.44



Total Cost of Ribes Eradication - \$529,440.63

Table 81 - Classification of Elitior Pest Control Funds Used on Project "Ribes Eradication"
Under All Programs in Northeastern States During 1937.

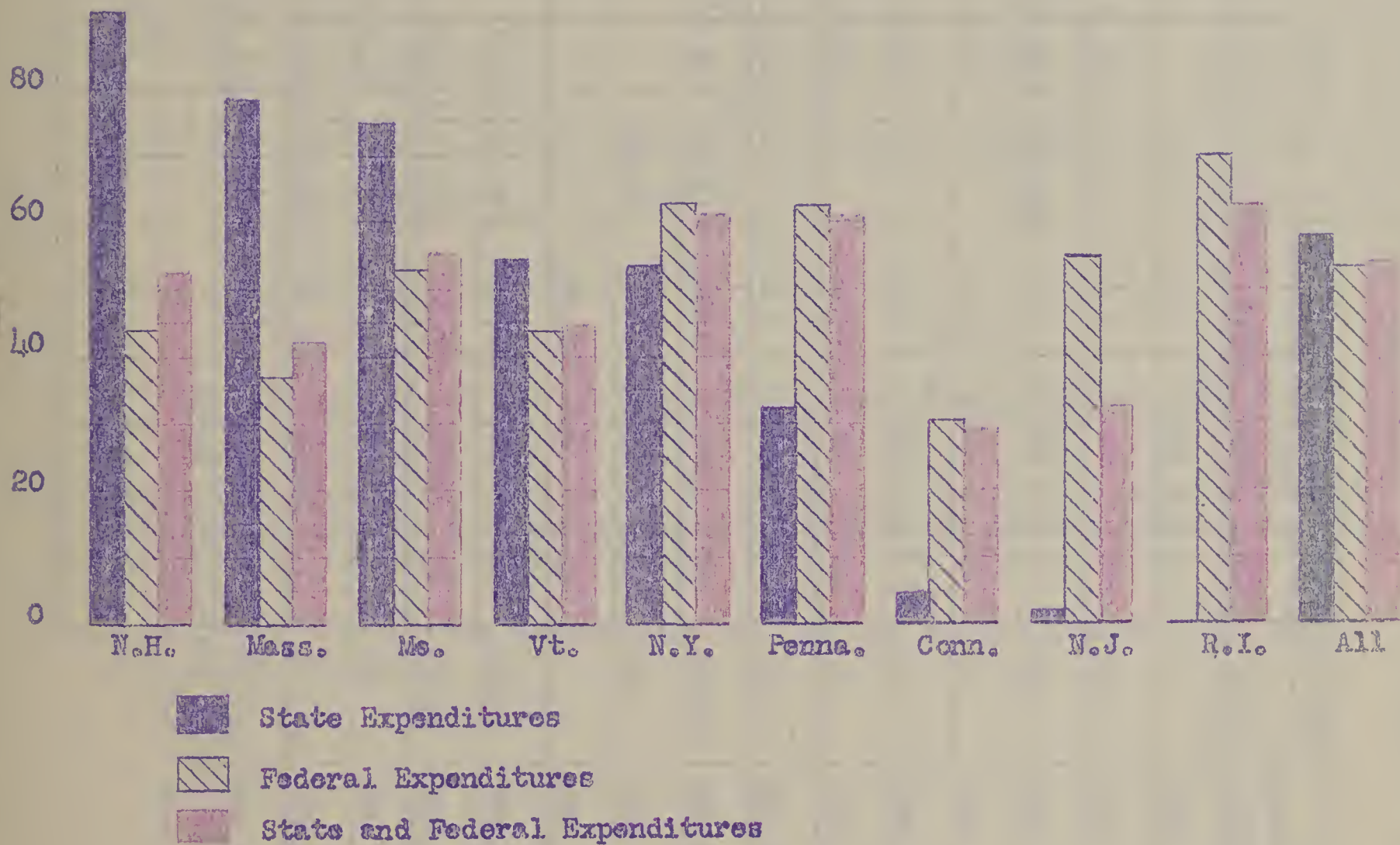
(Excludes nursery sanitation and cultivated black currant elimination)

State	State Funds			Federal Funds							Grand Total
	Indiv.	Towns & Counties	State	Total	C.C.C.	W.P.A.	B.E.&P.Q.	A.R.A.	S.C.S.	Total	
Maine	113.78	7,490.49	4,566.07	12,170.34	21,815.94	35,554.90	-	-	-	57,370.84	69,541.18
N.H.	45.95	14,309.54 ⁽¹⁾	3,630.00	17,985.49	8,113.07	33,322.49	-	-	-	41,435.56	59,421.05
Vt.	169.25	2,486.50	22.50	2,678.25	11,470.10	21,336.00	-	-	-	32,806.10	35,484.35
Mass.	3,402.90	777.37	2,693.56	6,873.83	1,036.63	21,609.26	63.05	-	-	22,708.94	29,582.78
R.I.	-	-	-	-	12,968.40	1,705.02	-	-	-	14,673.42	14,673.42
Conn.	224.00	-	24.05	248.05	10,530.30	11,841.23 ⁽²⁾	-	727.90	-	23,099.43	23,347.48
N.Y.	413.90	750.25 ⁽³⁾	25,489.68	26,653.83	82,600.08	72,406.30 ⁽⁴⁾	-	740.00	1961.62	157,708.00	184,361.83
N.J.	-	-	-	-	-	1,631.36	-	-	-	1,631.36	1,631.36
Penna.	5.20	-	2,836.03	2,841.23	82,006.67	24,362.33	-	1178.06	1008.90	108,555.96	111,397.19
Totals of	4,374.98	25,814.15	39,261.89	69,451.02	230,511.19	223,768.89	63.05	2645.96	2970.52	459,989.61	529,440.60
Total	0.8	4.9	7.4	13.1	43.5	42.3	.01	0.5	0.6	86.9	100

- (1) Includes \$99.50 county funds.
 (2) Includes \$9,580.16 state W.P.A. funds.
 (3) County funds.
 (4) Includes \$324.90 local W.P.A. funds.

PERCENTAGE OF TOTAL EXPENDITURES IN THE VARIOUS NORTHEASTERN STATES
FOR RIBES ERADICATION WORK DURING 1937.

100 Percent



Note: Includes regular Ribes eradication, special black currant elimination and nursery sanitation.

Table 82 - Summary of Nursery Sanitation Work Conducted Under All Programs in Northeastern States During 1937.

State	Type of Erad.	No. Nurseries Worked	Acreage Worked	Ribes Pulled		Total Man Days	Cost				B.E.&P.Q. S.C.S.	Total	Per Acre	
				Wild	Cult.		Indiv.	State	W.P.A.	C.C.C.			Cost	Ribes
Maine	Re-Erad.	1	222	0	0	15	-	-	-	24.17	-	24.17	.109	0
N.H.	Re-Erad.	1	110	36	1	4	-	-	21.12	-	-	21.12	.192	0.3
Mass.	Re-Erad.	4	585	341	0	82	-	326.85	134.59	-	-	461.44	.789	0.6
	Initial	1	590	27	45	9	-	-	46.50	-	-	46.50	.079	0.04
R.I.	Re-Erad.	4	1,683	41	2	20	-	-	46.50	48.84	-	95.34	.057	0.02
	Total	5	2,273	68	47	29	-	-	93.00	48.84	-	141.84	.062	0.03
Conn.	Re-Erad.	6	2,154	990	0	366	-	-	1196.44*	185.00	-	1,381.44	.641	0.4
N.Y.	Re-Erad.	3	9,340	6,508	36	281	39.50	913.43	132.07	-	-	1,085.00	.116	0.7
N.J.	Re-Erad.	1	250	146	0	8 $\frac{1}{2}$	-	42.00	-	-	31.79**	73.79	.295	0.6
	Initial	2	390	0	25	1 $\frac{1}{2}$	1.60	-	-	-	-	1.60	.004	0
Penna.	Re-Erad.	8	3,465	3,983	31	729	191.40	156.15	477.31	916.50	-	1,741.36	.503	1.1
	Total	10	3,855	3,983	56	729 $\frac{1}{2}$	193.00	156.15	477.31	916.50	-	1,742.96	.452	1.0
	Initial	3	980	27	70	9 $\frac{1}{2}$	1.60	-	46.50	-	-	48.10	.049	0.03
Totals	Re-Erad.	31	17,809	12,045	70	1505 $\frac{1}{2}$	230.90	1438.43	2003.03	1174.51	31.79	4,883.66	.274	0.7
	Total	34	18,739	12,072	140	1515	232.50	1438.43	2054.53	1174.51	31.79	4,931.76	.262	0.6

* Includes \$1,184.20 State W.P.A. funds.

** \$2.25 of this S.C.S. funds.

Table 83. - Special Ribes Nigrum Elimination Work Conducted Under All Programs in Northeastern States During 1937.

(All work restricted to Massachusetts)

Program		Regular Cooperative	W.P.A.	Total
No. towns worked		1	13	14
No. towns completed		1	12	13
No. properties inspected		204	12,383	12,587
No. patches located		204	14	218
No. Ribes Pulled	Nigrum	888	42	930
	Other Cult.	-	412	412
Total Man Days		69	144	213
Cost	Individuals	\$99.90	-	\$99.90
	State	218.84	-	218.84
	W.P.A.	-	\$543.85	543.85
	Total	\$318.74	\$543.85	\$862.59

Basis of costs: - Includes wages of laborers, scouts, and foremen while engaged in locating and destroying Ribes nigrum and other cultivated bushes as indicated - cost of transportation.

The W.P.A. work represents a re-check of areas originally examined several years ago.

Table 84 - Pine and Control Area Mapping Conducted Under All Programs
in Northeastern States During 1937.

State	No. Towns	Acreage Mapped	Acreage Examined But Not Mapped	Miles Boundary Lines Painted	Total Man Days	Cost			
						Towns	State	C.C.C.	W.P.A. B.E.&P.Q. Total
Maine	110	377,116	1,143,509	79	6,455	-	155.80	303.32	26,383.60 17.60 26,860.52
N.H.	69	288,705	65,254	-	7,827	-	162.82	2,405.77	27,363.95 1.25 29,933.79
Vt.	49	338,576	681,399	248	4,571	495.20	-	444.20	15,844.00 - 16,783.40
Mass.	45	176,779	365,820	269	3,545	850.00	185.52	-	16,445.51 5.51 17,486.54
R.I.	6	44,756	-	-	388	-	-	626.06	1,306.48 - 1,932.54
Conn.	49	93,230	342,288	278 $\frac{1}{2}$	5,698	-	-	-	29,993.90(1) 15.29 30,009.19
N.Y.	100	962,137	97,624	20	7,125	-	948.98	1,710.49	28,737.30 25.11 31,421.86
Pennn.	227	104,064	-	900	5,972	-	-	17,186.22	8,852.77 4.00 26,042.99
Totals	655	2,385,363	2,695,894	1,794 $\frac{1}{2}$	41,581	1,345.20	1,453.10	22,676.06	154,927.51 68.76 180,470.63

(1) Includes \$25,768.16 W.P.A. funds expended on special state project - Several hundred thousand acres were also examined but not mapped in Pennsylvania. No definite records were kept of the acreage eliminated in that state.

**Table 85 - Blister Rust Canker Elimination Work Under All Programs
in Northeastern States During 1937.**

State	Est. No. Pines Examined	No. Fatally Infected Pines Cut Down	No. Pines Treated For Infection	No. Cankers Removed		Total Man Days	Cost				
				Branch	Stem		Indiv.	Towns	State	W.P.A. C.C.C.	Total
Maine	14,921	768	724	510	214	31	150.00	-	-	-	150.00
N.H.	28,531	5,731	638	711	-	219	-	-	-	779.37	779.37
Vt.	141,197	34,368	11,558	12,578	14	1,194	70.70	380.00	20.50	3,385.35	3,857.05
Mass.	83,924	9,320	2,895	3,295	-	1,993	-	443.00	67.98	7,621.67	8,132.65
N.Y.	585,861	53,215	72,749	96,882	-	3,689	240.00	-	724.92	14,784.26	15,749.16
Penna.	135,412	3,029	13,434	40,168	981	1,081	-	-	-	3,118.85	3,742.61
Totals	1,039,916	106,431	101,998	154,144	1,209	8,207	460.70	823.00	813.40	29,690.00	32,410.80

**Table 86 - State Compensation Paid For Cultivated Ribes Destroyed Under All Programs
in Northeastern States During 1937.**

State	Total No. Cultivated Ribes Destroyed	No. Bushes Paid For	% Bushes Paid For	No. Persons Paid Compensation	Amount Paid in Reimbursement	Ave. Amount Paid Per Bush
Maine	1,375	-	-	-	-	-
N.H.	1,433	-	-	-	-	-
Vt.	958	-	-	-	-	-
Mass.	2,433	234	9.6	9	111.50	.476
R.I.	558	-	-	-	-	-
Conn.	934	-	-	-	-	-
N.Y.	5,063	62	1.2	5	30.90	.493
N.J.	15	-	-	-	-	-
Penna.	9,834	1	0.01	1	2.00	2.00
Totals	22,608	297	1.3	15	144.40	.486

Table 87 - Total State Expenditures, By Cooperating Agencies, For
Blister Rust Control Work in Northeastern States During Calendar Year 1937.

State	State BR Appropriation	Other State Appropriation Funds	Town Funds	Individual Funds or Labor	County Funds	Total
Maine	8,467.59	-	7,490.49	263.78	-	16,221.86
N.H.	5,282.99	-	14,210.04	45.95	99.50	19,638.48
Vt.	749.25	-	3,901.70	239.95	-	4,890.90
Mass.	2,989.70	1,050.46	2,070.37	3,502.80	-	9,613.33
R.I.	2,606.36	-	-	-	-	2,606.36
Conn.	4,485.30	-	420.00	224.00	-	5,129.30
N.Y.	49,380.45	865.60	-	693.40	750.25	51,689.70
N.J.	1,583.79	606.55	-	-	-	2,190.34
Penn.	9,650.14	66.69	-	198.20	-	9,915.03
Totals	86,195.57	2,569.50	28,092.60	5,168.08	849.75	121,895.50
% of Total	69.9	2.1	23.1	4.2	0.7	100.0

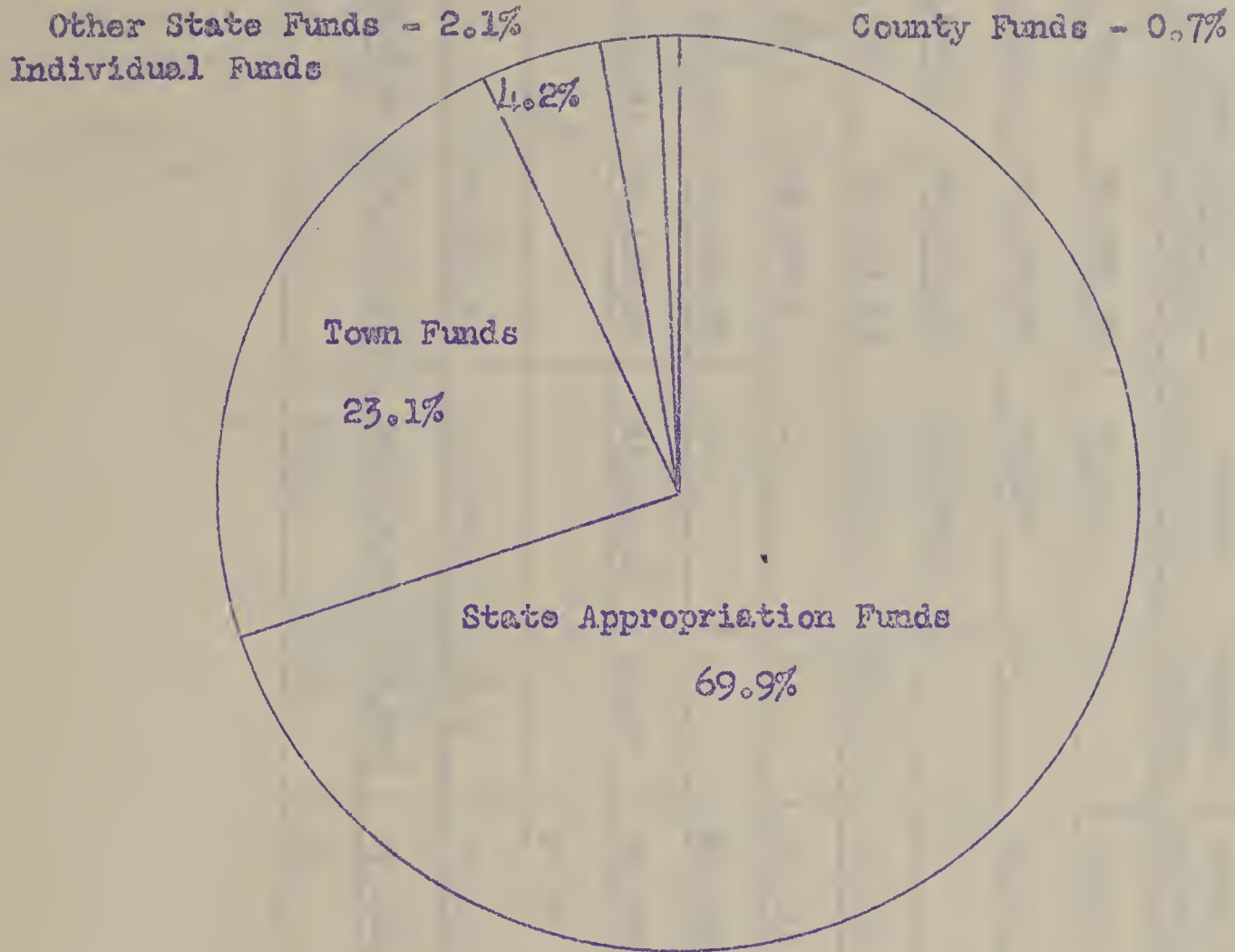
Table 88 - Total State Expenditures During The Calendar Year 1937 For The Various Blister Rust Control Projects in The Respective Northeastern States.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Exad. Assistants and Checkers	Bleak Current Elimination	Nursery Sanitation	Ribes Compen- sation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	2,311.19	12,170.34	1,434.53	-	-	-	150.00	155.80	-	16,221.86
N.H.	1,469.35	17,985.49	-	-	-	-	-	162.82	20.82	19,638.48
Vt.	706.25	2,678.25	-	-	-	-	471.20	495.20	540.00	4,890.90
Mass.	435.91	6,873.83	-	318.74	326.65	111.50	510.98	1,035.52	-	9,615.33
R.I.	2,606.36	-	-	-	-	-	-	-	-	2,606.36
Conn.	2,533.20	248.05	662.52	-	-	-	-	-	1,685.53	5,129.30
N.Y.	-	26,653.83	14,359.19	-	952.93	30.90	934.92	948.96	7,778.97	51,689.70
N.J.	1,541.79	-	606.55	-	42.00	-	-	-	-	2,190.34
Penn.	6,655.98	2,841.23	66.69	-	349.15	2.00	-	-	-	9,915.03
Totals	18,260.01	69,451.02	17,129.48	318.74	1,670.93	144.40	2,097.10	2,798.30	10,025.32	121,895.30
%										
Total	15.0	57.0	14.0	0.3	1.4	0.1	1.7	2.3	8.2	100.0

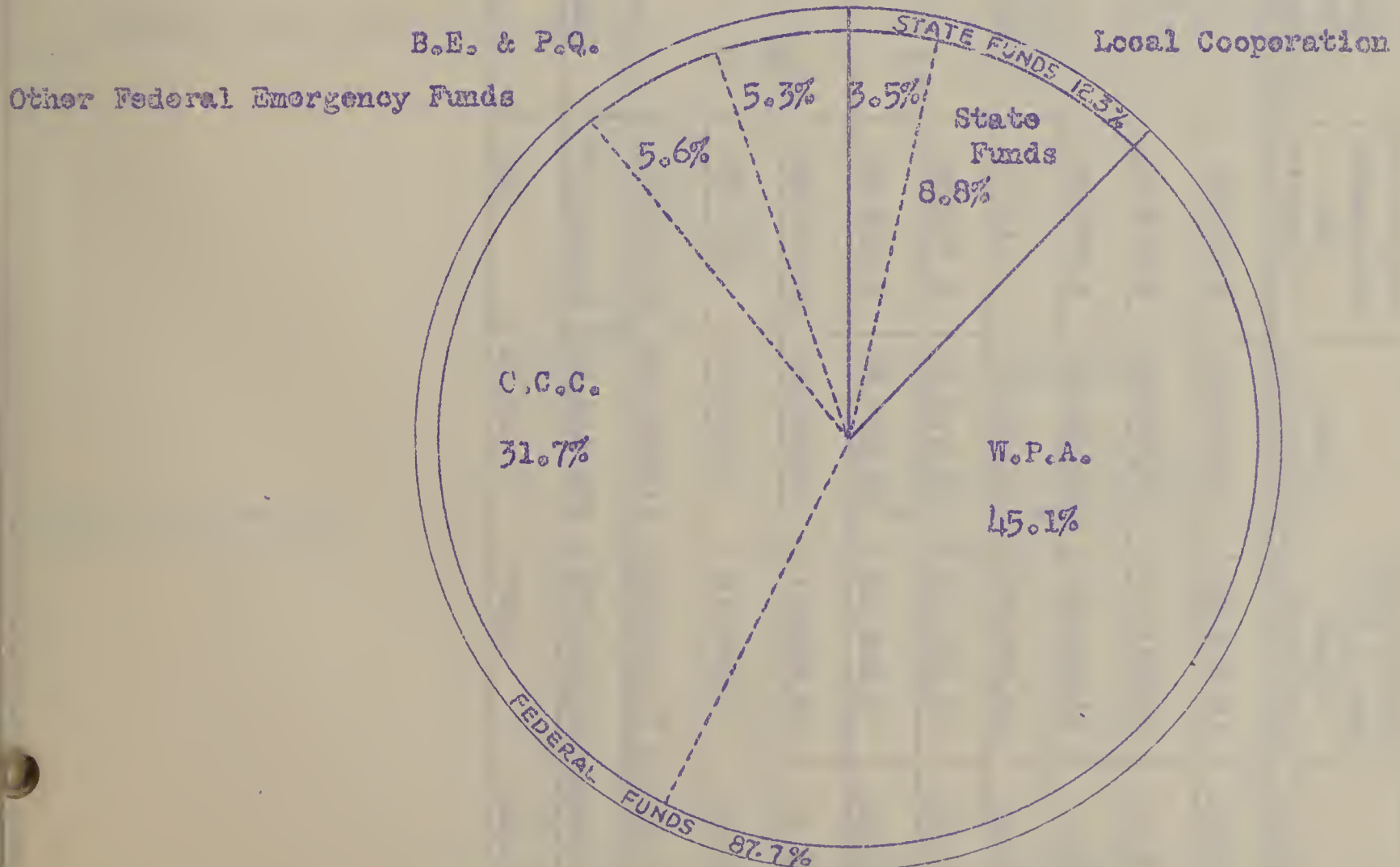
Table 89 - Total State and Federal Expenditures For Blister Rust Control
in Northeastern States During Calendar Year 1937.

State	Total State Expenditures	Federal Expenditures						Total	Total State and Federal Expenditures
		B.E. & P.Q.	C.C.C.	Federal W.P.A.	State & Local W.P.A.	A.R.A.	S.C.S.		
Maine	16,221.86	8,110.44	27,776.21	72,876.20	-	-	-	108,762.85	124,984.71
N.H.	19,638.48	8,021.71	13,348.97	72,353.06	-	-	-	93,723.74	113,362.22
N.J.	4,890.90	7,931.48	15,488.25	51,559.04	-	-	-	74,978.77	79,869.67
Mass.	9,613.33	7,390.56	1,154.85	54,901.04	-	-	-	63,446.45	73,059.78
P.I.	2,606.36	244.43	17,428.91	3,438.76	-	-	-	21,112.10	23,718.46
Conn.	5,129.30	4,437.64	16,392.85	8,778.99	49,491.02	727.90	-	79,828.40	84,957.70
N.Y.	51,689.70	10,179.75	101,639.40	136,650.48	324.90	740.00	1,961.62	251,496.15	303,185.85
N.J.	2,190.34	759.96	-	2,265.94	-	-	2.25	3,028.15	5,218.49
Penna.	9,915.03	6,118.25	122,443.43	45,225.66	-	1,178.06	1,158.90	176,129.35	186,044.38
Totals	121,895.30	53,194.22	315,677.92	448,049.17	49,815.92	2,645.96	3,122.77	872,505.96	994,401.26
% of Total	12.3	5.3	31.7	45.1	5.0	0.3	0.3	87.7	100.0

PERCENTAGE TOTAL BLISTER RUST CONTROL EXPENDITURES
IN NORTHEASTERN STATES DURING CALENDAR YEAR 1937
PAID BY VARIOUS COOPERATING AGENCIES.



Total State Expenditures - \$121,895.30



Total State and Federal Expenditures - \$994,401.26

Table 90 - Total State and Federal Expenditures During Calendar Year 1937 For The Various Blister Rust Control Projects in The Northeastern States.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Current Elimination	Nursery Sanitation	Ribes Compen- sation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	19,119.90	69,541.18	7,067.31	-	24.17	-	150.00	26,860.32	2,221.83	124,984.71
N.H.	19,121.69	59,421.05	3,064.16	-	21.12	-	779.37	29,933.79	1,021.04	115,362.29
Vt.	14,824.40	35,484.35	3,573.95	-	-	-	8,857.05	16,783.40	5,346.52	79,869.27
Mass.	15,752.79	29,582.77	118.22	862.59	461.44	111.50	8,132.65	17,486.54	551.28	73,059.70
R.I.	3,185.05	14,673.42	3,723.30	-	141.84	-	-	1,932.54	62.31	25,718.48
Conn.	8,556.59	23,347.48	6,469.42	-	1,381.44	-	-	30,009.19	15,193.58	84,957.70
N.Y.	26,635.97	184,361.83	31,778.26	-	1,085.00	30.90	15,749.18	31,421.86	12,122.85	303,185.81
N.J.	2,906.79	1,631.36	606.55	-	73.79	-	-	-	-	5,218.49
Penna.	21,184.61	111,397.19	21,932.02	-	1,742.96	2.00	3,742.61	26,042.99	-	186,044.38
Totals %	131,287.79	529,440.63	78,333.19	862.59	4,951.76	144.40	32,410.86	180,470.63	36,519.41	994,401.27
Total	13.20	53.24	7.89	.08	.50	.01	3.26	18.15	3.67	100.0

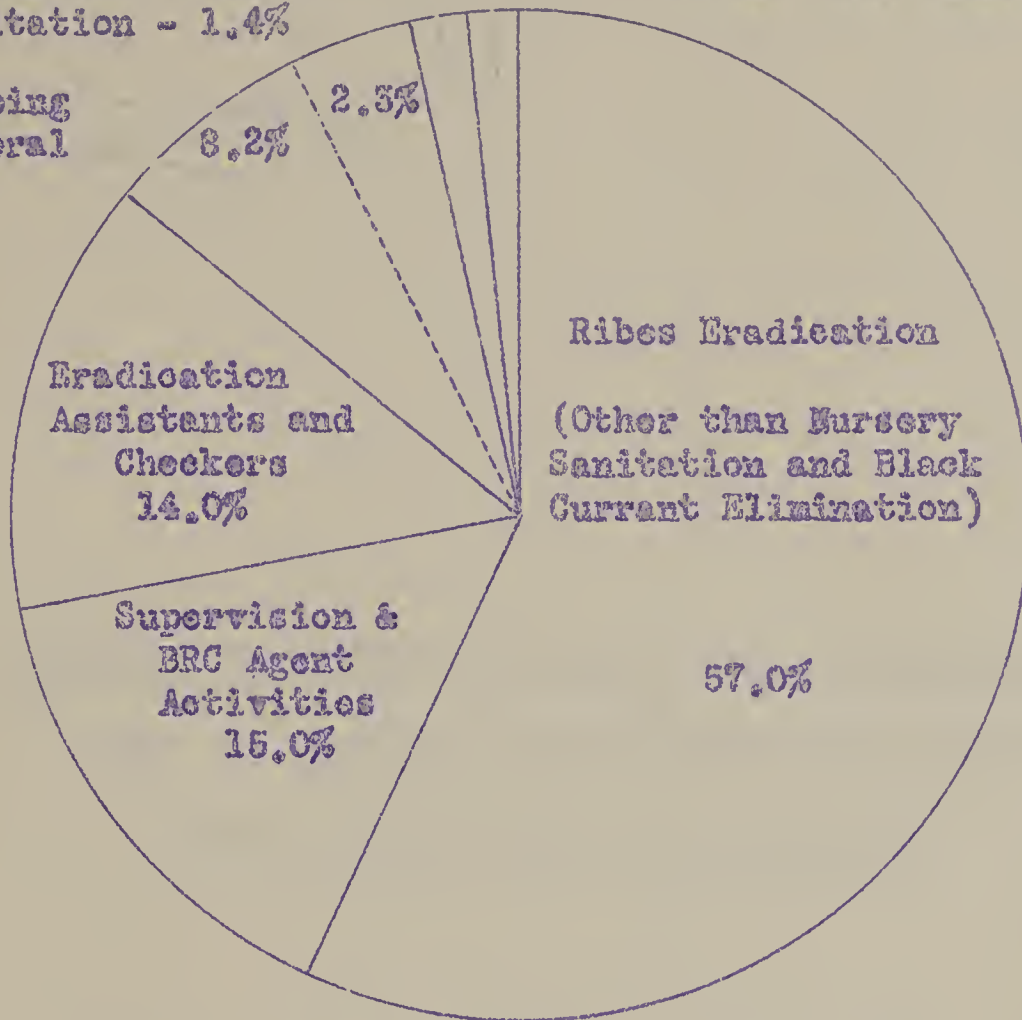
STATE AND FEDERAL EXPENDITURES IN NORTHEASTERN STATES
DURING CALENDAR YEAR 1937

(Percentage of Total Spent on Each Project)

Ribes Compensation - 0.1%
Black Currant Elimination - 0.3%
Nursery Sanitation - 1.4%

Blister Rust Canker Elimination - 1.7%

Field Data Mapping
General

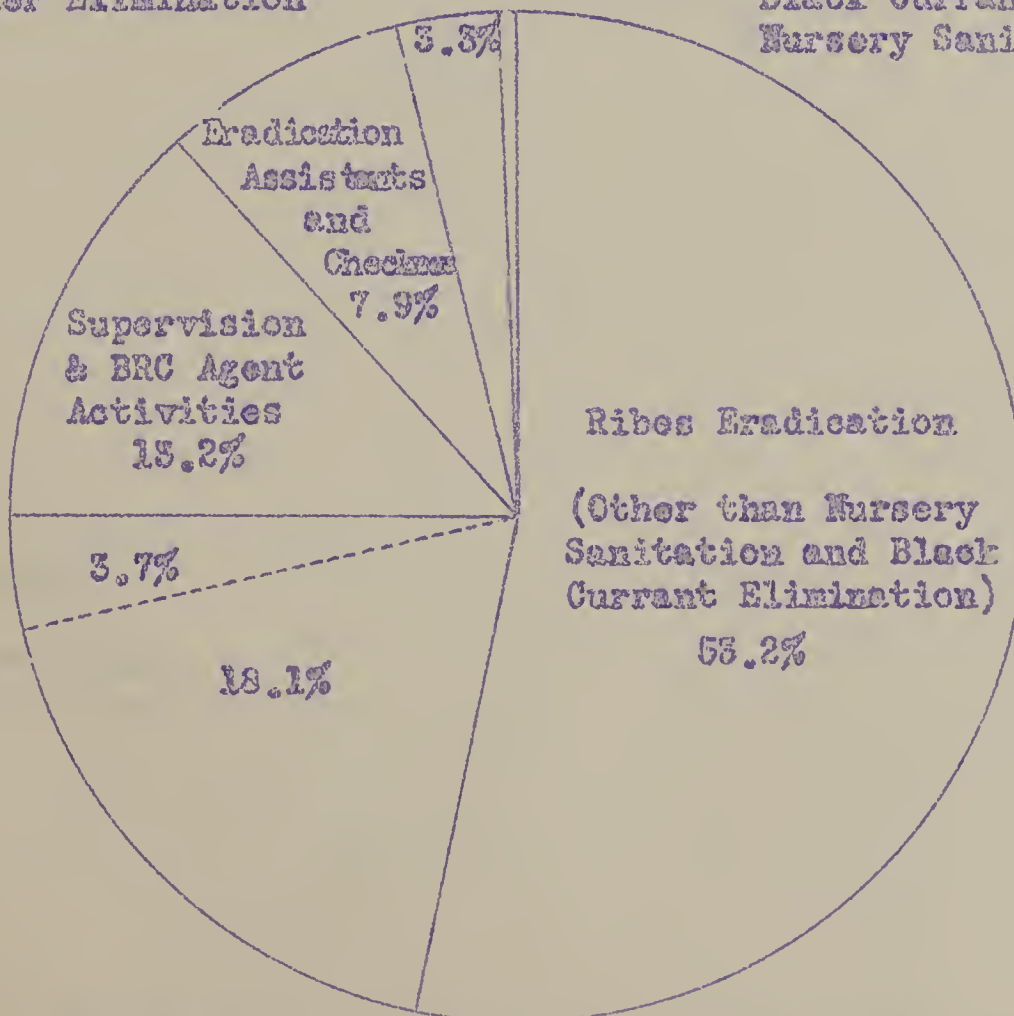


Total State Expenditures - \$121,895.30

Blister Rust Canker Elimination

Ribes Compensation - .01%
Black Currant Elimination - .03%
Nursery Sanitation - 0.5%

Field Data General
Mapping



Total Federal Expenditures - \$994,401.26

BLISTER RUST CONTROL ACTIVITIES AND ACCOMPLISHMENTS
UNDER ALL PROGRAMS IN THE NORTHEASTERN STATES
DURING PERIOD 1918-1937, INCLUSIVE

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SUMMARY OF INITIAL RIBES ERADICATION WORK IN NORTHEASTERN STATES ALL YEARS

INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED.

STATE	1918					1919					1920					1921					1922					1923				
	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost
	Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost	
MAINE	4910	91862	235	5179.23	105 18.7	9216	333,775	-	6,136.10	67 36.2	10,283	176,788	636	4,994.05	49 17.2	156,221	56,304	708	3,398.76	52 4	190,209	449,287	3,688	8,012.48	04 2.3	336,432	1,208,998	12,095	19,327.36	06 3.6
N. H.	66292	959,315	8,427	26,089.09	39 14.5	163,413	1,659,936	21,171	35,371.86	22 10.1	203,373	2,061,996	22,206	37,038.66	18 10.1	137,827	1,654,443	9,713	22,640.93	16 12.0	178,489	1,816,829	9,061	28,706.64	16 10.2	267,807	3,490,130	24,779	51,604.66	19 13.0
V.T.	4696	78,563	77	5,182.64	110 16.8	2,460	94,749	-	2,214.26	90 39.3	4,501	34,294	74	3,391.60	75 8.1	6,319	60,537	131	3,464.01	55 9.6	13,512	201,906	812	6,150.24	46 15.0	23,950	272,246	1,234	8,080.55	34 11.4
MASS.	18,706	356,067	1,919	15,805.31	84 19.0	10,849	201,882	2,374	8,156.18	75 18.6	19,389	1,224,306	1,421	10,422.87	54 63.1	32,733	632,618	4,631	10,290.54	31 19.2	64,302	1,578,294	2,368	13,375.09	21 24.5	184,988	1,750,693	14,887	26,802.33	15 9.5
R. I.	12,715	13,927	492	3,527.97	28 11	40,411	45,320	1,657	5,609.14	14 11	23,164	5,973	1,550	3,796.92	16 3	26,971	16,022	552	3,826.92	14 6	11,500	11,764	132	1,840.00	16 10	28,068	13,011	1,464	1,701.56	06 0.5
CONN.	860	10,000	-	400.00	50 12.5	2,500	31,000	-	2,323.34	93 12.4	2,170	42,793	2	1,974.70	91 19.7	8,000	41,470	6	2,664.07	33 52	6,175	137,501	-	4,651.50	75 22.2	14,062	288,333	248	6,863.14	49 20.5
N. Y.	29,337	904,153	11,000	43,679.16	148 30.8	23,194	2,181,286	2,675	19,689.08	343 94.0	7,438	753,790	47	32,043.94	43 101.3	14,183	1,275,709	21	46,600.73	329 89.9	11,030	654,231	-	34,082.70	309 59.3	15,459	906,617	367	44,229.78	287 57.3
ALL STATES	137,458	2,413,887	22,150	99,863.40	73 17.6	252,043	4,549,948	27,877	139,500.56	55 18.1	270,318	4,301,940	25,936	93,662.74	35 19.9	382,454	3,737,103	15,762	92,885.96	24 9.8	475,217	4,849,812	16,061	96,818.65	20 10.2	870,766	7,930,028	55,074	158,609.38	18 10.2

STATE	1924					1925					1926					1927					1928					1929				
	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost
	Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost	
MAINE	399,287	1,829,349	11,599	22,734.31	06 4.6	274,034	1,700,870	15,041	20,070.86	07 16.2	303,709	3,052,380	17,552	20,915.42	07 10.1	260,471	2,582,159	10,225	22,075.46	09 9.9	202,359	1,577,254	8,778	22,417.60	11 7.8	234,459	2,129,942	18,244	21,959.78	09 9.1
N. H.	324,734	4,023,359	14,941	52,599.44	16 12.4	237,702	3,180,730	5,996	42,408.99	18 13.4	178,287	2,968,421	3,612	41,199.78	23 16.6	151,985	2,176,006	2,169	31,222.55	21 14.3	145,329	2,041,412	4,076	31,572.35	22 14.0	155,719	1,866,554	6,178	30,961.38	20 12.0
V.T.	24,714	177,187	592	8,951.78	3.6	25,226	510,717	640	8,587.67	34 12.3	16,800	227,908	1,404	8,281.99	49 13.6	17,090	262,360	314	7,392.22	43 15.4	14,475	147,930	144	6,020.30	42 10.2	10,295	87,885	397	5,245.87	51 8.5
MASS.	158,465	2,023,070	38,777	34,648.43	22 12.8	190,945	745,446	33,610	21,355.13	11 3.9	183,085	1,078,821	25,596	26,697.59	15 5.9	284,411	864,090	32,733	26,077.95	09 3.0	227,058	497,963	34,146	28,519.45	13 22	243,879	825,565	32,226	29,827.84	12 3.4
R. I.	47,480	22,361	2,953	2,092.01	04 0.5	25,640	4,994	1,928	1,519.04	06 0.2	25,537	16,438	203	1,674.23	07 0.6	9,735	22,279	521	1,700.86	18 2.3	21,461	17,777	615	2,629.64	12 0.8	-	-	-	-	-
CONN.	17,215	289,034	2,447	5,981.73	35 16.7	13,735	270,747	680	4,592.03	33 19.7	21,687	175,157	318	4,775.59	22 8.1	12,068	40,441	715	1,784.63	15 3.4	73,981	98,412	1,289	6,727.34	09 1.3	28,394	127,124	9471	7,128.74	25 4.5
N. Y.	25,198	1,061,368	2,501	40,907.02	162 42.1	33,611	993,445	1,153	35,323.38	105 29.6	36,994	1,075,841	2,087	37,052.10	100 29.1	61,676	1,393,905	2,207	44,809.78	73 22.6	85,434	1,740,941	9,411	45,570.13	53 54.0	118,465	1,904,238	6,077	58,923.31	50 16.1
PENNA.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5459	329,670	561	3,756.26	69 60.4
ALL STATES	997,793	9,425,728	73,810	167,914.72	17 9.4	800,893	7,206,949	59,048	133,857.10	17 9.0	766,099	8,594,966	50,772	140,596.70	18 11.2	797,436	7,341,240	48,884	135,063.45	17 9.2	770,117	6,121,689	58,459	143,456.81	19 7.9	796,670	7,270,978	73,154	157,803.18	20 9.1

STATE	1930					1931					1932					1933					1934					1935				
	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost	No. Ribes		Per Acre		Total Cost
	Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost		Acres	Wild	Cult	Cost	
MAINE	197,075	2,096,207	10,357	23,463.51	12 10.6	114,544	1,286,322	4,846	18,429.69	16 11.2	51,151	735,489	3,569	11,981.89	23 14.4	73,135	1,885,886	4,919	37,137.52	31 25.8	89,896	3,880,322	2,518	55,638.50	62 43.2	134,917	4,965,441	2,944	105,269.31	78 36.8
N. H.	218,137	2,807,150	3,192	47,766.94	22 12.9	158,004	2,891,692	4,022	46,596.31	30 18.3	79,924	866,528	1,066	14,704.96	18 10.8	71,075	4,122,871	752	48,211.90	63 53.5	75,478	3,500,360	8	47,564.53	63 46.4	89,318	3,469,646	375	63,255.07	71 38.8
V.T.	7,245	74,039	83	4,243.45	59 10.2	8,125	38,827	129	3,144.50	39 4.8	7,476	34,525	4,060	2,361.18	32 4.6	17,280	232,624	225	12,095.21	70 13.5	19,483	483,240	20	14,511.69	75 23.8	28,248	478,377	210	23,058.50	92 16.9
MASS.	108,683	996,376	8,072	15,294.78	14 9.2	29,815	128,179	4,270	6,491.93	22 4.3	13,584	106,577	967	3,196.38	24 7.8	14,003	223,388	48	5,545.16	40 16.0	12,713	834,977	1,673	11,352.77	89 6.7	45,417	755,168	14,522	28,499.50	63 16.6
R. I.	-	-	-	-	-	-	-	-	-	-	497	203	214	246.75	50 0.4	80	129	-	97.07	121 1.6	-	-	-	-	-	26,257	13,531	320	7,154.27	27 0.5
CONN.	27,253	33,330	3,140	3,013.79	11 1.2	1,510	25,776	260	730.05	48 17.1	-	-	-	-	-	-	-	-	-	-	36,050	77,987	1,202	9,320.12	26 2.2	48,315	356,528	4,176	20,573.44	43 7.4
N. Y.	89,894	1,306,498	4,302	47,116.14	52 14.5	118,353	1,484,224	4,956	55,433.61	47 12.5	145,075	1,223,388	6,198	49,370.12	34 8.5	75,773	659,088	3,113	31,633.48	42 8.7	182,389	5,687,497	8,115	111,684.67	61 31.2	245,452	6,418,062	13,060	213,858.17	87 26.1
N. J.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,695	22,322	1,163	896.93	07 1.8	1,482	18,663	351	2,096.33	141 12.6
PENNA.	11,745	656,768	863	8,631.48	74 55.9	24,016	828,958	703	9,979.18	42 34.5	20,212	802,027	3,342	6,064.70	30 39.7	19,799	1,704,794	212	22,368.01	113 86.1	33,184	4,967,191	2,324	57,171.25	172 149.7	64,879	624,432	8,482	110,789.03	171 96.2
ALL STATES	660,032	7,970,368	30,009	149,530.09	23 12.1	454,367	6,683,978	19,186	140,805.07	31 14.7	317,919	3,768,737	19,416	87,925.98	28 11.9	277,145	8,828,780	9,269	157,088.35	57 31.9	461,888	19,433,896	17,023	308,140.46	67 42.1	684,285	22,719,742	44,440	574,553.62	84 33.2

SUMMARY OF RIBES RE-ERADICATION WORK IN NORTHEASTERN STATES - ALL YEARS

INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED

STATE	1923				1924				1925				1926				1927			
	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.		
MAINE	20	284	-	5.80	580	1,240	1,240	-	359.60	29 14.2	6.44	9,145	-	186.76	29 14.2	728	54,199	10	364.59	51 74.4
N. H.	430	6,603	-	4.682	4682	6,668	75,168	48	990.79	15 11.3	24,008	113,221	406	2,516.61	11 47	32,046	159,488	14 50	4,406.89	341
V.T.	1,240	6,324	-	4.1788	41788	974	4,967	-	328.24	34 5.1	1,396	7,120	-	470.45	34 5.1	5,850	298,35	-	1,971.45	34 5.1
MASS.	16,943	25,414	-	1.60959	160959	1,311	1,966	-	124.55	10 1.5	4,256	6,384	-	404.32	10 1.5	6,145	9,218	-	593.78	10 1.5
R. I.	3,240	1,264	-	194.40	19440	5,000	2,350	-	210.00	04 0.5	-	-	-	-	-	2,670	1,197	-	250.00	09 0.5
CONN.	-	-	-	-	-	-	-	-	-	-	2,371	2,050	4	903.27	38 0.9	570	7,669	12	286.76	50 13.4
N. Y.	-	-	-	-	-	-	-	-	-	-	1,326	1,420	-	463.98	35 1.1	1,079	1,499	-	77.66	07 1.4
ALL STATES	21,873	39,889	-	2,274.49	22,744.9	15,193	102,059	48	2,013.18	13 6.7	34,001	139,340	410	4,945.39	15 4.1	49,088	263,105	699	7,941.13	16 5.4

STATE	1928				1929				1930				1931				1932			
	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.		
MAINE	708	18,538	-	180.30	18030	232	34,771	-	234.60	1.01 149.9	810	27,570	216	578.95	12 34.0	2,165	70,096	134	1,395.09	64 32.4
N. H.	8,320	26,126	1,144	9,272.61	9272.61	96,425	236,445	466	9648.02	10 2.5	6,733	33,080	5	829.27	12 4.9	21,357	130,583	200	3,649.78	17 6.1
V.T.	2,292	11,410	52	866.07	866.07	3,005	2,786	56	1,249.60	42 7.6	5,877	20,572	25	1,660.26	28 3.5	3,535	10,287	3	980.77	28 2.9
MASS.	15,875	25,437	7	1,249.81	12498.1	20,961	16,194	655	2,658.67	13 0.8	28,108	27,995	83	2,825.55	10 1.0	85,714	136,036	2,388	6,624.90	08 1.6
R. I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONN.	1,124	24,973	75	1,286.50	1286.50	6,203	7,283	1,451	905.80	15 1.2	2,342	10,829	455	1,227.67	52 4.6	4,540	85,051	-	4,005.85	88 18.7
N. Y.	10,395	216,828	824	5,035.30	5035.30	9,291	78,433	668	6,543.17	70 8.4	8,327	95,691	169	3,014.16	36 11.5	5,205	18,706	67	1,331.05	26 3.6
PENNA.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,408	39,384	-	1,047.33	74 28.0
ALL STATES	113,595	558,312	2,102	17,890.59	17,890.59	136,117	395,912	3,296	21,239.86	16 2.9	52,197	215,737	953	10,135.86	19 4.1	123,924	490,143	2,792	19,034.77	15 4.0

STATE	1933				1934				1935				1936				1937			
	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost	Acres Reexamined	No. Ribes		Per Acre Cost	Total Cost
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.		
MAINE	23,047	365,439	68	6,900.38	6900.38	28,823	290,762	28	7,711.38	27 10.1	64,166	1,063,168	446	37,661.57	59 16.6	203,794	4,377,479	9,059	110,753.86	54 21.5
N. H.	21,453	571,195	5	8,232.92	8232.92	10,967	388,588	-	4,815.13	44 35.4	57,413	1,438,645	149	37,897.88	56 25.1	165,947	3,797,938	1,195	99,733.46	60 22.9
V.T.	9,939	90,521	3	7,197.26	7197.26	12,690	258,508	-	10,762.31	85 20.4	22,633	254,089	110	16,700.46	74 11.2	27,315	720,273	469	27,455.54	101 26.4
MASS.	83,104	330,385	2821	14,218.90	14218.90	110,419	256,113	1,499	14,413.42	13 2.3	66,914	627,044	2739	43,140.86	65 9.4	68,175	1,112,632	3,029	60,448.00	89 16.3
R. I.	5,233	3,459	86	4,433.53	4433.53	41,726	74,730	532	13,297.35	32 1.8	72,260	93,682	3,147	28,834.74	40 1.3	92,243	85,172	4,321	30,979.23	34 0.9
CONN.	42,513	300,299	109	16,628.59	16628.59	39 7.1	36,537	782,593	24,768.31	68 21.4	56,233	781,670	2,606	36,659.22	65 13.9	36,705	519,811	854	31,388.66	86 14.2
N. Y.	65,550	1,268,914	283	41,450.32	41450.32	81,868	619,259	4726	37,950.22	46 7.6	79,504	1,147,014	790	43,818.94	55 14.4	115,220	2,328,262	2,446	97,461.89	85 20.2
N. J.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENNA.	2,871	991,852	51	29,477.37	29477.37	28,155	1,029,235	62	42,690.37	152 36.6	21,790	703,755	1,185	33,262.88	153 32.3	26,674	1,262,042	688	44,272.64	166 47.3
ALL STATES	275,710	3,922,064	3,426	128,539.27	128,539.27	47 14.2	3,511,885	6,921	156,408.49	45 10.5	440,913	6,109,067	11,172	277,976.55	63 13.9	736,073	14,203,609	22,061	502,493.28	68 19.3

STATE											GRAND TOTALS				1923-1937 INCL.			
											Acres Re-examined	No. Ribes		Total Cost	Per Acre Cost	Ribes		
									Wild	Cult								
MAINE											452,665	8,070,337	11,702	210,897.60	49	18.7		
N. H.											684,828	8,853,557	4,938	228,000.79	33	12.9		
V.T.											119,372	1,670,968	1,554	82,864.49	69	14.0		
MASS.											713,034	3,540,888	16,264	187,644.13	26	5.0		
R. I.											258,857	313,704	8,375	90,807.28	35	1.2		
CONN.											258,026	2,970,020	7,968	150,155.45	58	11.5		
N. Y.											422,608	6,430,055	10,583	267,049.79	63	15.2		
N. J.											1,417	16,956	15	163.136	115	12.0		
PENNA.											127,678	4,291,087	2,353	178,526.42	140	33.6		
ALL STATES											3,018,485	36,157,572	63,772	1,397,517.31	46	12.0		

SUMMARY OF RIBES ERADICATION WORK IN NORTHEASTERN STATES - ALL YEARS

INITIAL AND RE-ERADICATION WORK

(INCLUDES ALL RIBES ERADICATION WORK PERFORMED UNDER ALL PROGRAMS. HOWEVER, ALL BLACK CURRANT ELIMINATION AND NURSERY SANITATION PROJECTS SINCE 1929 ARE EXCLUDED)

STATE	1918				1919				1920				1921				1922				1923			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost
MAINE	4910	91,862	235	5179.23	9216	333,775	-	6136.10	67	362	10,283	176,788	636	4,994.05	49	1172	156,221	56,304	708	3,398.76	02	4	190,209	8012.48
N. H.	64,292	959,315	8427	26,089.09	163,413	1,659,936	21,171	35,371.86	22	102	20,373	2,061,996	22,206	37,038.66	18	10.1	137,827	1,654,443	9,713	22,640.93	16	12.0	178,489	28,706.64
V.T.	4698	78,563	77	5,102.64	2460	96,749	-	2,214.26	90	393	4,501	36,294	74	3,391.60	75	8.1	6,319	60,537	131	3,464.01	55	9.6	13,512	6,150.24
MASS.	18,706	356,067	1,919	15,805.31	108,49	201,882	2374	81,561.18	75	18.6	19,389	1,224,306	1,421	3,796.92	54	63.1	32,933	632,618	4,631	10,290.54	31	19.2	64,302	13,375.09
R. I.	12,715	13,927	492	3,527.97	28	11	40,411	56,097.4	14	11	23,164	5,973	1,550	3,796.92	16	3	26,971	16,022	552	3,826.92	14	6	11,500	1,840.00
CONN.	800	10,000	-	437.400.00	50	12.5	2,500	2,323.34	93	12.4	2,170	42,793	2	1,974.70	91	19.7	8,000	41,470	6	2,664.07	33	52	6,175	137,501
N. Y.	29,337	904,153	11,000	43,679.16	146	30.8	23,194	79,689.08	343	94.0	7438	753,790	47	32,043.94	43	101.3	14,183	1,275,709	21	46,600.73	329	899	110,300	34,082.70
ALL STATES	137,458	2,413,887	22,150	99,863.40	73	17.6	252,043	1,395,500.56	55	18.1	270,318	4,301,940	25,936	93,662.74	35	15.9	382,454	3,737,103	15,762	92,885.96	24	98	475,217	96,818.65

STATE	1924				1925				1926				1927				1928				1929			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost
MAINE	401,227	1,846,957	11,599	23,093.91	274,678	1,710,015	15,041	20,257.62	07	62	304,437	3,106,579	17,562	21,280.01	07	10.2	261,481	2,601,639	10,225	22,513.71	09	9.9	203,067	22,597.90
N. H.	331,402	4,098,527	14,989	53,590.23	16	12.4	261,710	3,293,951	6,402	44,925.60	17	12.6	210,333	3,127,909	4,289	45,606.67	22	14.9	226,019	41,072.84	18	11.8	228,530	40,844.96
V.T.	25,688	182,154	592	9,280.02	36	7.1	26,622	317,837	640	9,058.12	34	11.9	22,650	257,743	1,404	10,253.44	45	11.4	19,405	8,233.95	42	14.4	16,767	6,886.37
MASS.	159,776	2,025,036	38,777	34,772.98	22	12.6	195,201	21,759.45	11	38	189,230	1,088,039	25,596	27,281.37	14	5.7	299,353	906,490	32,760	27,940.03	09	3.1	242,933	29,769.26
R. I.	52,480	24,711	2,953	2,302.01	04	5	25,640	1,919.04	06	0.2	28,207	17,635	203	1,924.23	07	0.6	9,735	22,279	521	1,700.86	18	2.3	21,461	26,296.4
CONN.	17,215	289,034	2,447	5,981.73	35	16.7	16,106	5,495.30	34	16.9	22,257	182,826	330	5,062.35	23	8.2	20,904	152,825	1,208	8,633.20	41	7.3	75,105	801,384
N. Y.	25,198	1,061,368	2,501	40,907.02	162	42.1	34,937	35,187.36	1,02	28.4	38,073	1,077,340	2,087	37,129.76	98	28.3	62,955	1,410,646	2,207	45,923.96	72	22.4	95,849	50,605.43
PENNA.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL STATES	1,012,986	9,527,787	73,858	169,927.90	17	9.4	834,894	1,388,024.9	17	8.8	815,187	8,858,071	51,471	148,537.83	18	10.9	899,832	8,046,826	49,745	155,618.55	17	8.9	883,712	161,347.40

STATE	1930				1931				1932				1933				1934				1935			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost
MAINE	197,885	2,123,777	10,573	24,042.46	12	10.7	116,709	1,356,418	4,980	19,824.78	17	11.6	81,587	1,022,986	4,726	19,266.99	24	12.5	96,182	44,037.90	46	23.4	118,719	63,349.88
N. H.	224,870	2,840,230	3,197	48,596.21	22	12.6	179,361	3,022,275	4,222	50,246.09	28	16.9	97,232	1,075,218	1,145	17,647.93	18	11.1	98,528	56,444.82	57	47.6	86,445	32,379.66
V.T.	13,122	94,611	108	5,903.71	45	7.2	11,660	49,114	132	41,250.7	35	4.2	11,849	58,776	4,757	3,775.54	32	5.0	27,219	19,292.47	71	11.9	32,173	25,274.00
MASS.	136,791	1,024,371	8,155	18,120.33	13	7.5	115,529	2,642,15	6,658	13,116.83	11	2.3	161,606	334,353	3,071	16,637.41	10	2.1	97,107	19,764.06	20	5.7	123,132	25,766.19
R. I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONN.	29,595	44,159	3,595	4,241.46	14	1.5	6,050	110,827	260	47,359.0	78	18.3	7,337	5,798	289	1,665.06	26	0.9	5,313	4,530.60	85	0.7	41,726	13,297.35
N. Y.	98,221	1,402,189	4,471	50,130.30	51	14.3	123,558	1,502,930	5,023	56,764.66	46	12.2	155,897	1,295,653	6,538	4,592.40	63	18.3	42,513	16,628.59	39	7.1	72,587	34,088.43
N. J.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENNA.	11,745	656,768	863	8,631.48	74	55.9	25,424	868,342	703	11,026.51	43	34.2	22,640	859,086	3,349	7,911.15	35	37.9	44,670	51,845.38	116	60.4	61,339	99,861.62
ALL STATES	712,229	8,186,105	30,962	159,665.95	22	11.5	578,291	7,174,121	21,978	159,839.84	28	12.4	544,620	4,786,326	25,091	124,983.41	23	8.8	552,855	285,627.62	52	23.1	813,073	464,548.95

STATES	1936				1937				1938				1939				1940				1941			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost	Acres	Wild	Cult	Cost
MAINE	357,436	13,576,831	13,221	23,384.20	65	38.0	112,399	3,251,278	1,375	69,541.18	62	28.9	-	-	-	-	-	-	-	-	-	-	-	-
N. H.	308,887	10,064,507	5,745	206,376.29	67	32.8	102,133	2,532,303	1,432	59,421.05	58	24.8	-	-	-	-	-	-	-	-	-	-	-	-
V.T.	113,154	4,994,198	2,385	129,586.94	115	44.1	48,674	1,287,720	958	35,484.35	73	26.5	-	-	-	-	-	-	-	-	-	-	-	-
MASS.	127,805	1,903,930	3,918	96,391.29	75	14.9	36,985	856,508	1,091	29,582.77	52	15.0	-	-	-	-	-	-	-	-	-	-	-	-
R. I.	96,442	89,259	4,764	33,912.71	35	0.9	37,749	53,111	511	14,673.42	39	14	-	-	-	-	-	-	-	-	-	-	-	-
CONN.	78,974	657,567	3,794	46,323.98	59	8.3	57,859	212,695	934	23,347.48	40	37	-	-	-	-	-	-	-	-	-	-	-	-
N. Y.	544,857	15,946,283	26,237	52,649.80	96	29.3	210,947	6,121,640	5,032	184,361.83	87	29.0	-	-	-	-	-	-	-	-	-	-	-	-
N. J.	2,565	6,795	199	2,291.07	89	2.6	1,417	16,956	15	1,631.36	115	12.0	-	-	-	-	-	-	-	-	-	-	-	-
PENNA.	156,258	8,429,377	13,663	247,968.31	159	53.9	88,559	3,071,039	9,778	111,397.19	126	34.7	-	-	-	-	-	-	-	-	-	-	-	-
ALL STATES	1,784,378	55,668,747	73,926	159,342.48	85	31.2	716,722	17,403,250	21,126	529,440.63	74	24.3	-	-	-	-	-	-	-	-	-	-	-	-

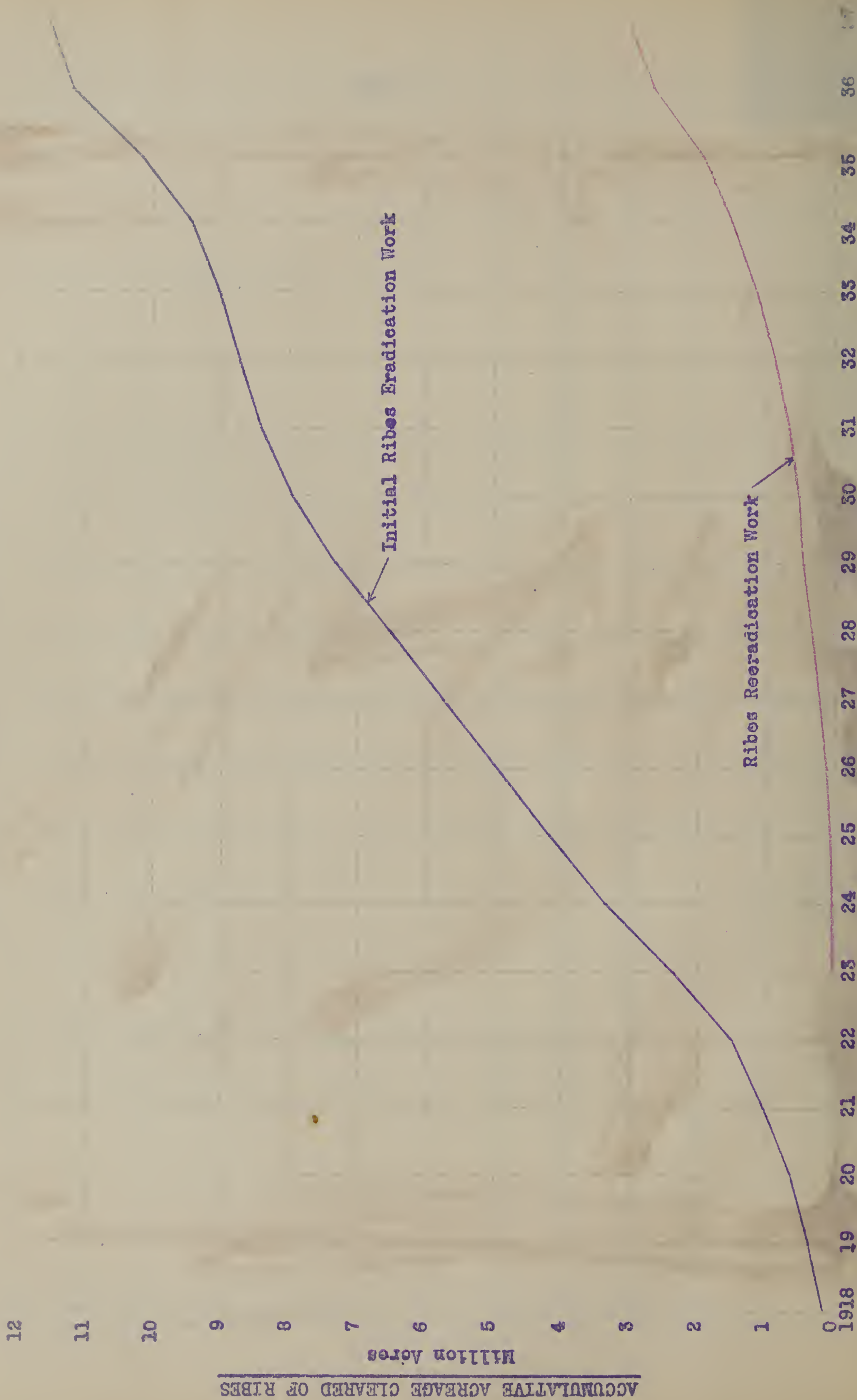
GRAND TOTALS 1918-1937 INCL.												1938-1939 INCL.										1940-1941 INCL.
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Table 94 - Summary of All Ribes Eradication Work
During Period 1918-1937, in Washington State

Program		Regular Cooperative	C.C.C.	P.W.A.	Federal W.F.A.	W.A.	S.C.S.	N.Y.A.	Totals
Total	Initial	9,054,997	1,145,799	179,970	1,175,220	12,634	7,033	348	11,598,426
Acres	Re-Erad.	1,259,396	822,377	162,541	733,981	714	214	-	3,018,485
Worked	Total	10,314,393	1,968,176	342,511	1,909,201	13,348	7,247	348	14,616,913
Number	Initial	99,441,289	43,868,457	7,639,253	46,267,713	1,451	217,117	4,242	197,722,785
Wild Ribes	Re-Erad.	6,865,290	12,436,231	1,368,399	15,270,084	1,779	2,190	-	36,157,572
Pulled	Total	106,306,579	56,304,688	9,007,652	61,537,797	3,230	219,307	4,242	233,880,357
For Cult.	Initial	604,945	65,609	7,297	55,502	948	200	-	735,265
Ribes	Re-Erad.	22,766	14,627	5,379	20,203	110	-	-	63,772
Pulled	Total	627,711	80,236	12,676	75,705	1,058	200	-	799,037
Total	Initial	639,238	562,571	33,419	314,661	3,361	3,606	84	1,562,392
Man	Re-Erad.	72,835	310,879	16,156	149,941	772	410	-	556,134
Days	Total	712,073	873,450	49,575	464,602	3,566	4,016	84	2,118,526
Local Coop.		982,371.51	-	1,793.65	23,625.81	-	-	-	1,011,584.28
State		1,037,987.67	25,402.89	13,420.75	62,849.83	105.80	603.04	100.00	1,143,557.76
B.P.I.		266,286.41	-	-	-	-	-	-	266,286.41
B.E. & P.O.		63.05	-	-	-	-	-	-	63.05
Park Service		8,345.53	-	-	-	-	-	-	8,345.53
Forest Service		2,251.39	-	-	-	-	-	-	2,251.39
C.C.C.		-	1,387,384.72	-	-	-	-	-	1,387,384.72
P.W.A.		-	-	181,881.14	-	-	-	-	182,119.34
W.F.A.		19.00	-	-	1,669,952.65	-	245.76	-	1,681,961.42
C.W.A. & E.R.A.		-	-	-	-	-	-	-	27,902.90
A.R.A.		-	-	-	-	57.94	-	-	15,057.94
S.C.S.		-	-	-	-	-	6135.90	-	6,135.90
N.Y.A.		-	-	-	-	-	-	220.80	220.80
Total		2,297,324.56	1,412,787.61	199,095.54	1,756,457.72	167.74	6984.70	320.80	5,732,871.44
Per Acre	Cost	.223	.718	.581	.923	.040	.964	.922	.392
Values For	Ribes	10.3	28.6	26.3	32.2	.27	30.3	12.2	16.0
All Work	Man Days	.07	.44	.14	.24	.27	.55	.24	.14

PROGRESS IN ESTABLISHING AND MAINTAINING BLISTER RUST CONTROL

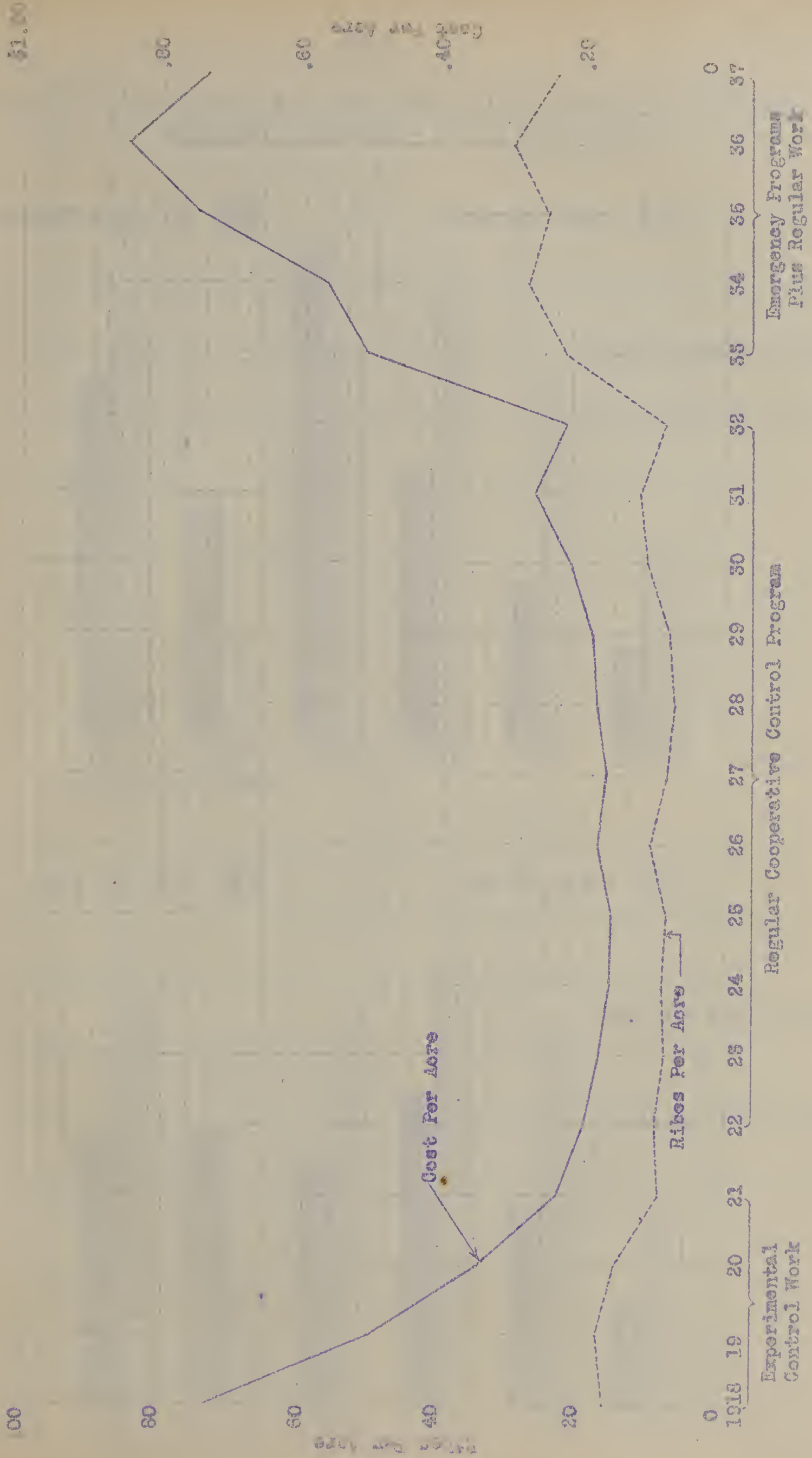
NORTHEASTERN STATES 1918-1937, INCLUSIVE



YEAR RIBES ERADICATION WORK PERFORMED

COMPARISON BY YEARS OF PER ACRE VALUES FOR ALL RIBES ERADICATION WORK

NORTHEASTERN STATES - 1918 TO 1937, INCLUSIVE.



COMPARISONS BY PROGRAMS OF PER ACRE VALUES FOR RIBES ERADICATION WORK
NORTHEASTERN STATES - 1933-1937, INCLUSIVE

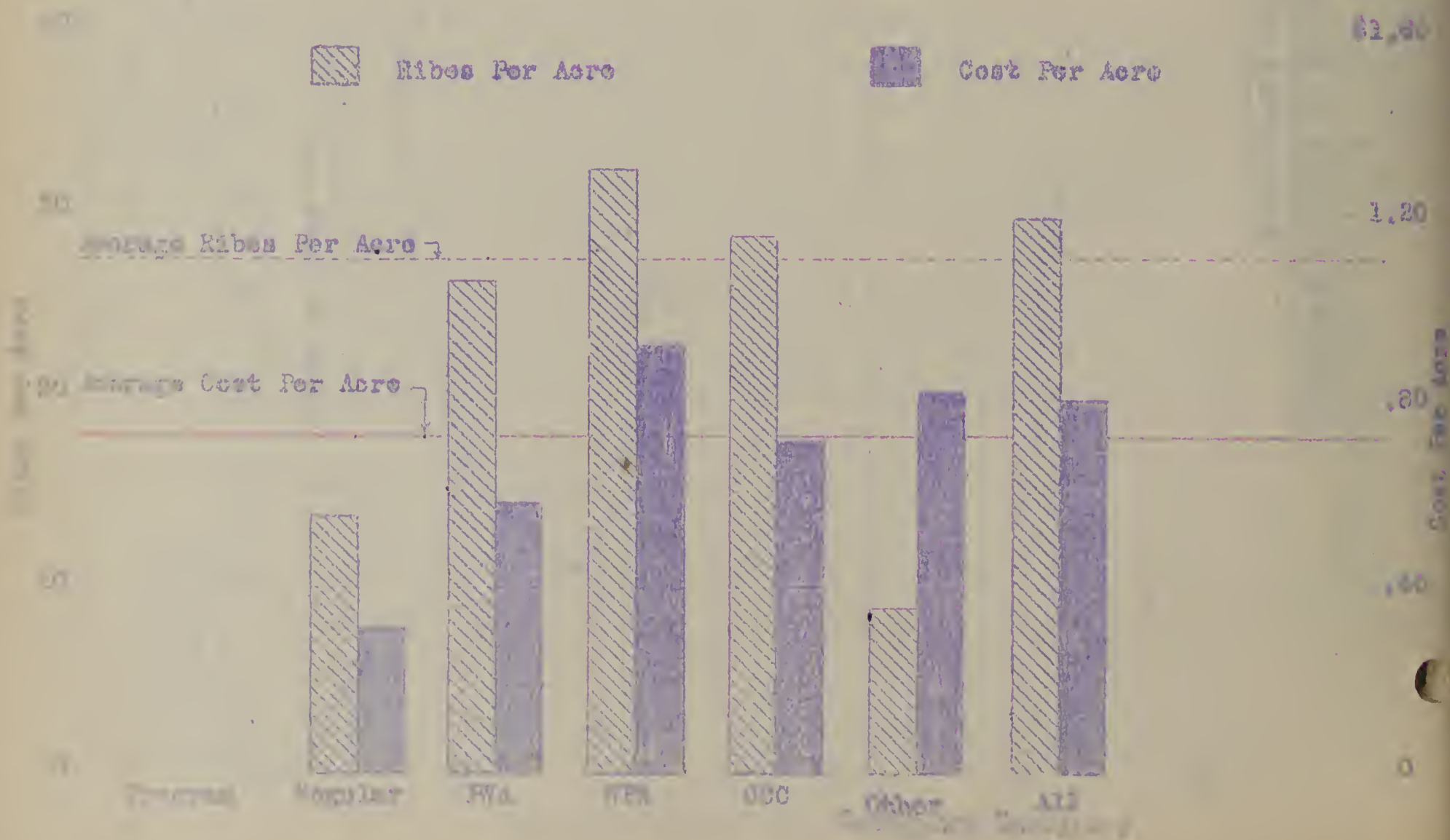
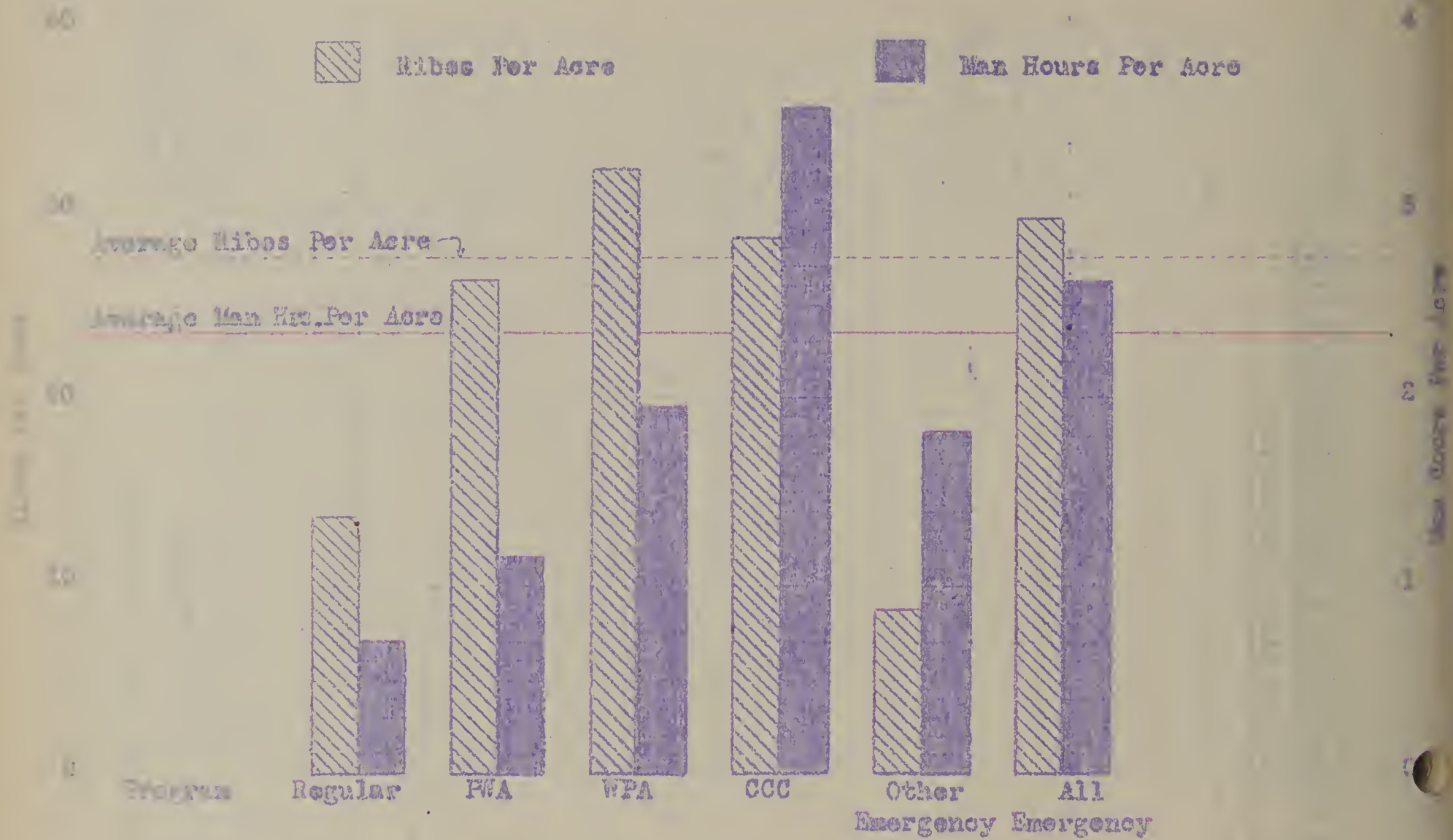


Table 95 - Ribes Eradication Work Performed on Federal Lands in Northeastern States
During Period 1924-1937, Inclusive (Regular and C.C.C. Programs)

Project	Type of Erad.	Total Acreage Worked	Ribes Pulled		Total Man Days	Cost				Per Acre			
			Wild	Cult.		C.C.C.	B.P.I.	Forest Service	Park Service	State	Total	Cost	Ribes Days
Acadia National Park, Me.	Initial	19,632	866,007	293	10,774	12,536.52	3145.83	-	8345.53	-	24,027.88	1.22	44.1
	Re-Erad.	8,794	33,204	-	3,396	5,640.89	-	-	-	-	5,640.89	.64	3.8
	Total	28,426	899,211	293	14,170	18,177.41	3145.83	-	8345.53	-	29,668.77	1.04	31.6
White Mt. National Forest, N.H.	Initial	7,949	807,788	-	2,791	3,231.25	75.63	1471.62	-	224.11	5,002.61	.629	101.7
	Re-Erad.	3,245	269,089	-	1,478	2,337.41	-	-	-	-	2,337.41	.720	82.9
	Total	11,194	1,076,877	-	4,269	5,568.66	75.63	1471.62	-	224.11	7,340.02	.656	96.2
Allegheny National Forest, Pa.	Initial	4,158	759,375	30	2,246	3,166.92	136.56	507.71	-	-	3,811.19	.917	182.6
	Re-Erad.	1,152	61,061	-	542	646.41	71.29	272.06	-	-	989.76	.859	53.0
	Total	5,310	820,436	30	2,788	3,813.33	207.85	779.77	-	-	4,800.95	.904	154.5
Totals	Initial	31,739	2,433,170	323	15,811	18,934.69	3358.02	1979.33	8345.53	224.11	32,841.68	1.03	76.7
	Re-Erad.	13,191	363,354	-	5,416	8,624.71	71.29	272.06	-	-	8,968.06	.680	27.5
	Total	44,930	2,796,524	323	21,227	27,559.40	3429.31	2251.39	8345.53	224.11	41,809.74	.931	62.2

Basis of Costs: See page 27 for work performed under Regular Cooperative Program, and page 47 for C.C.C. activities.

Data in above table are included in preceding Ribes eradication summaries of work under Regular Cooperative and C.C.C. Programs - also in tables 91 to 93, inclusive.

Table 98 - Status of Ribes Eradication Work in Northeastern States-December, 1937
Initial Control Work.

State	Total Acreage Of Control Area	Total Acreage Worked 1918-1937 Incl.	% Total Control Area Worked	Acreage Still To Be Worked			Estimated No. 8 Hour Man Days Required to do Remaining Initial Work
				White Pine	Protection Zones	Total	
Maine	4,010,570	3,284,207	80.6	233,784	512,579	776,363	160,094
N.H.	3,380,865	3,085,128	91.3	155,394	140,343	295,737	54,889
Vt.	744,321	370,472	49.8	81,049	292,800	373,849	93,206
Mass.	1,965,040	1,917,695	97.6	15,229	32,116	47,345	5,788
R.I.	340,155	310,954	91.4	14,291	14,910	29,201	5,840
Conn.	559,926	361,328	64.5	42,850	155,748	198,598	39,466
N.Y.	3,074,098	1,926,817	62.7	329,858	817,423	1,147,281	286,971
N.J.	35,642	16,742	46.9	2,700	15,200	18,900	3,780
Penna.	1,135,899	375,085	33.0	100,759	660,055	760,814	300,962
Totals	15,246,516	11,598,428	76.1	1,005,914	2,642,174	3,648,088	950,996

Basis: The total acreage of the control area in each state consists of the total acreage initially cleared of Ribes up to 1937, inclusive, plus the estimated acreage still in need of initial protection. (These figures are now being checked on a township basis.) The total acreage still to be worked in each state was compiled from township estimates submitted by the state or district blister rust control leaders during January, 1938. The man days required to do the remaining initial work are also based on estimates provided recently by these men.

Re-Eradication Work

State	Total Acreage Re-Worked 1918-1937, Incl.	Acreage Now Needing Re-Examination For Ribes Regrowth	% Necessary Re-Examination Work Completed	Estimated No. 8 Hour Man Days Required To Do Necessary Re-Examination Work
Maine	432,665	989,548	30.4	236,600
N.H.	684,828	1,910,971	26.4	295,841
Vt.	119,372	143,414	45.4	40,239
Mass.	713,034	1,122,938	38.8	146,677
R.I.	258,857	22,701	91.9	4,539
Conn.	258,026	20,594	92.6	6,416
N.Y.	422,608	269,408	61.1	57,558
N.J.	1,417	-	100.0	-
Penna.	127,678	1,971	98.5	714
Totals	3,018,485	4,481,545	40.2	788,594

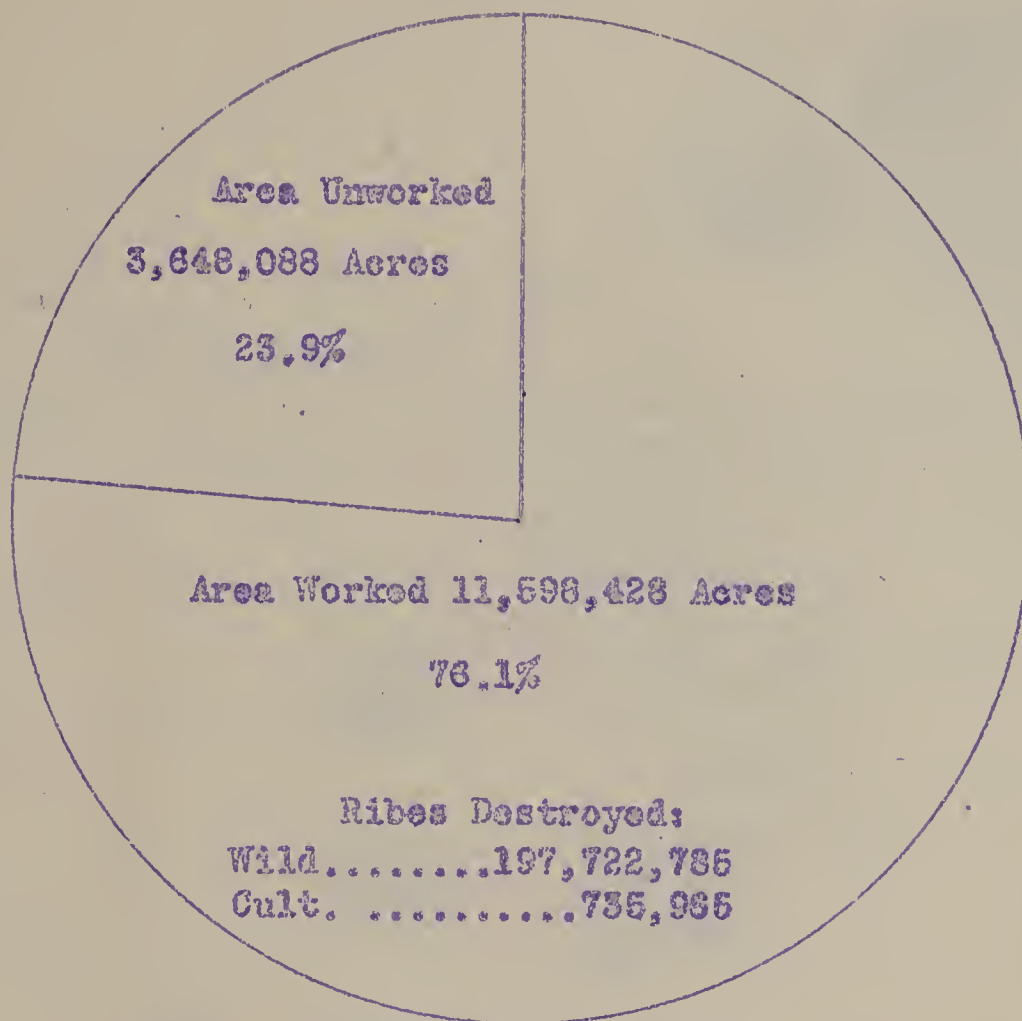
Basis: The acreages now needing re-examination for Ribes and the man days required to do this work were compiled from township estimates submitted by the state or district blister rust control leaders during January, 1938.

STATUS OF INITIAL RIBES ERADICATION WORK IN NORTHEASTERN STATES

DECEMBER 1937

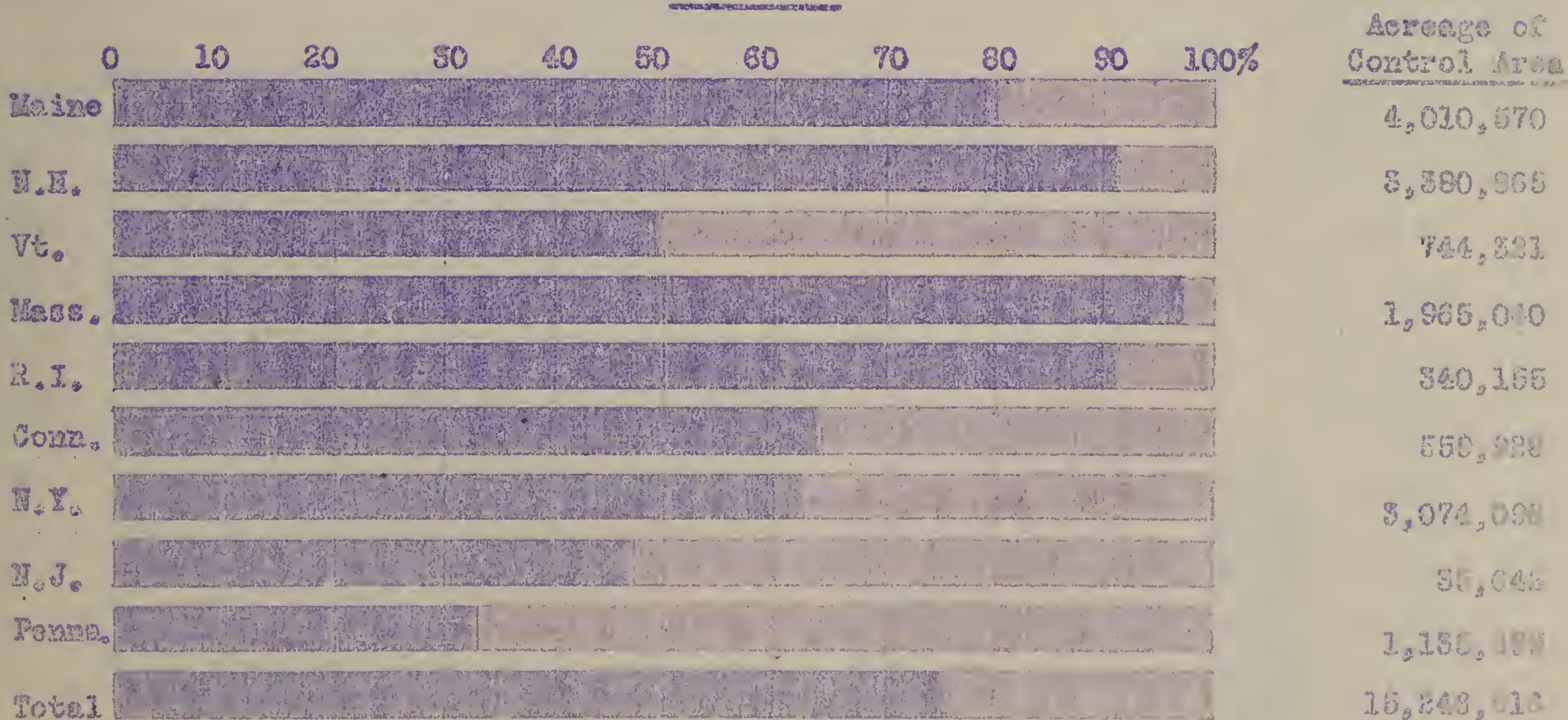
(Excludes Special Nursery Sanitation and Black Currant Elimination Projects)

ALL STATES



Total Control Area - 15,246,516 Acres

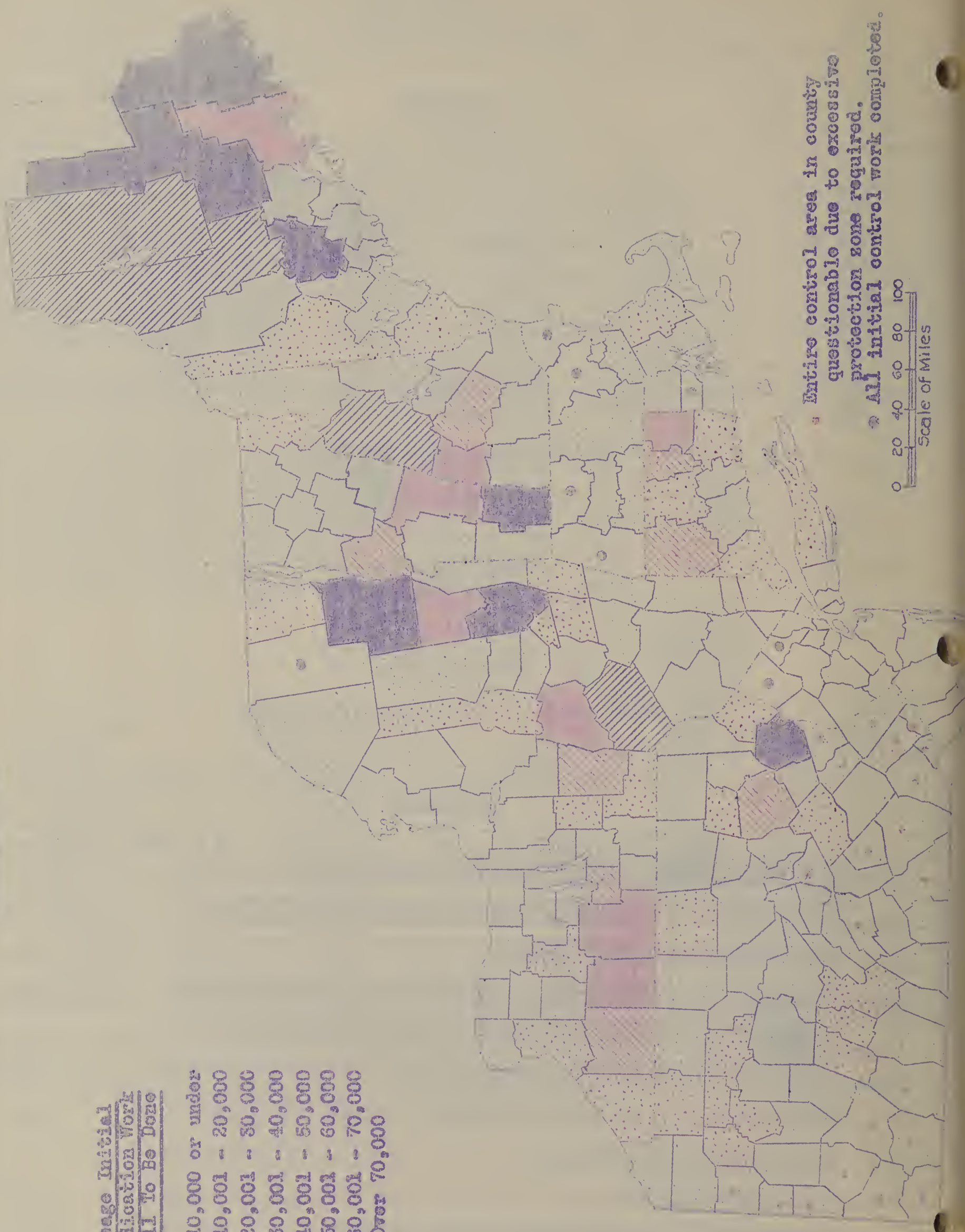
BY STATES



Percentage Control Area: Worked ☐ Unworked ☐

STATUS OF INITIAL RIBES GRADUATION WORK IN NORTHWESTERN STATES
DECEMBER 1937

Acreage Initial Eradication Work Still To Be Done	
- 10,000 or under	
- 10,001 - 20,000	
- 20,001 - 30,000	
- 30,001 - 40,000	
- 40,001 - 50,000	
- 50,001 - 60,000	
- 60,001 - 70,000	
- Over 70,000	

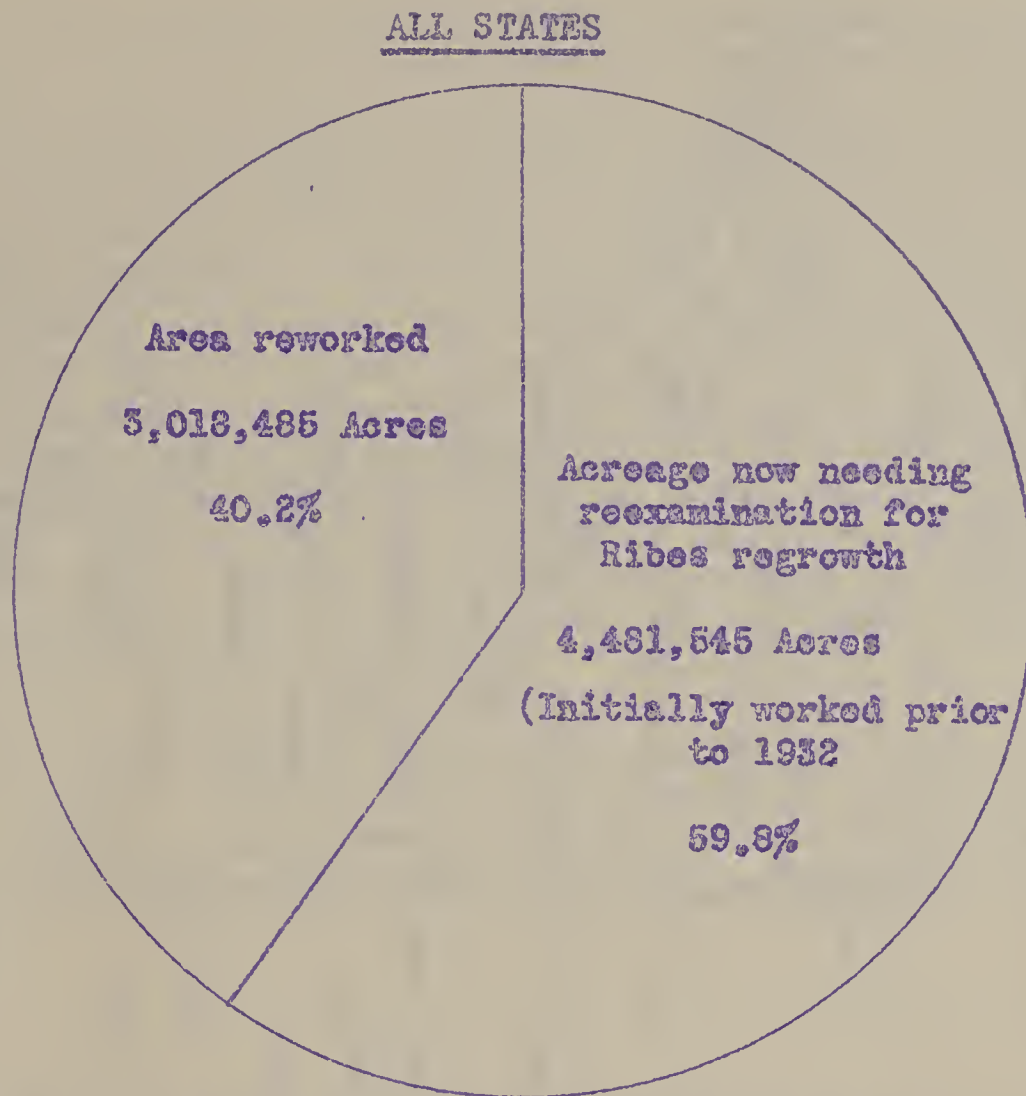


Entire control area in county
questionable due to excessive
protection zone required.
All initial control work completed.

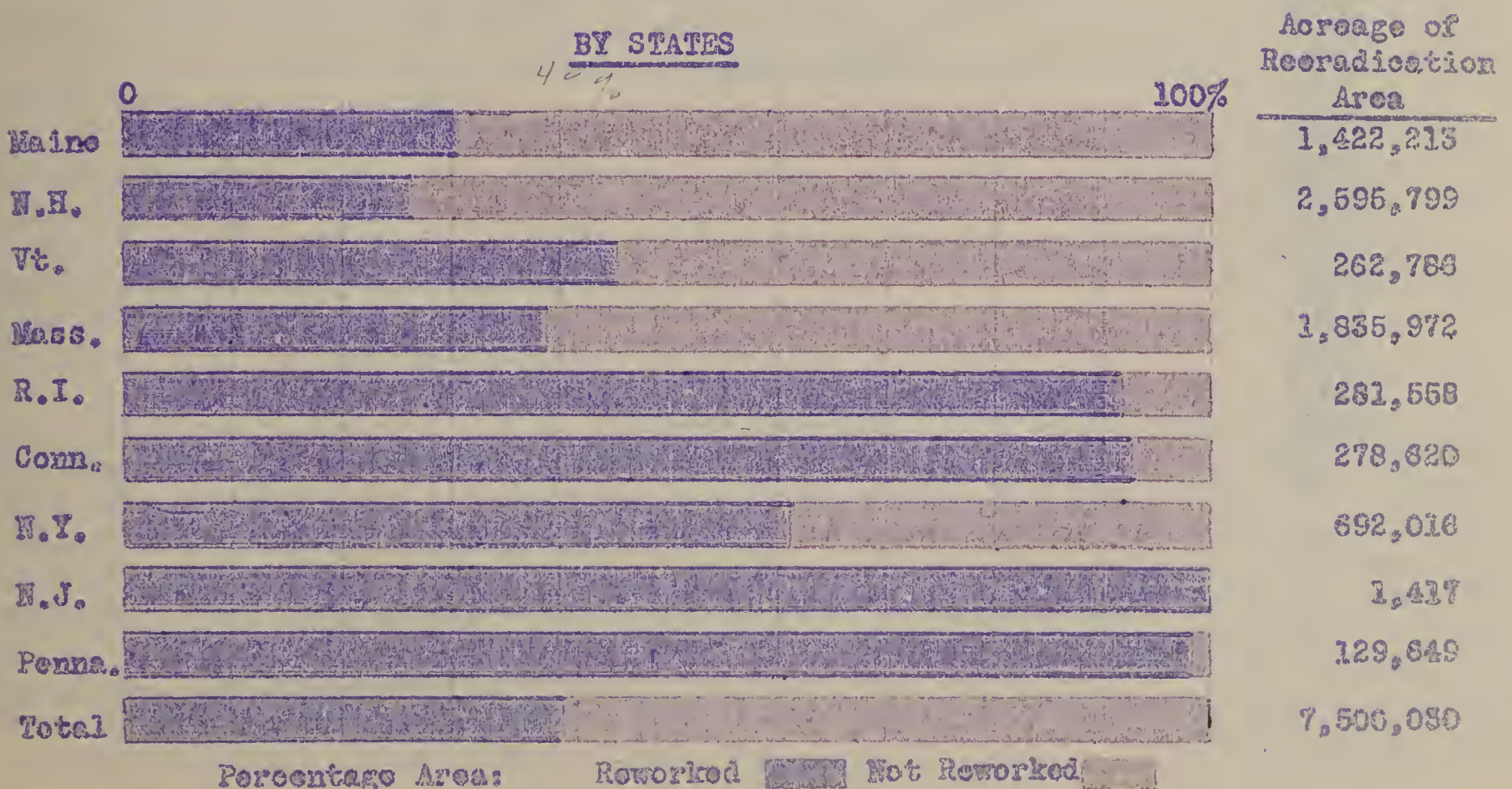
0 20 40 60 80 100
Scale of Miles

STATUS OF RIBES REERADICATION WORK IN NORTHEASTERN STATES, DECEMBER, 1937.
(Excludes Special Nursery Sanitation and Black Currant Elimination Projects)

The reeradication area is based on the total acreage reworked for Ribes during the period 1918-1937, inclusive, plus the acreage needing re-examination at the end of 1937.



Reeradication Area - 7,500,030 Acres



ACREAGE NOW NEEDING REEXAMINATION FOR RIDES
IN RESPECTIVE COUNTIES OF THE NORTHEASTERN STATES.

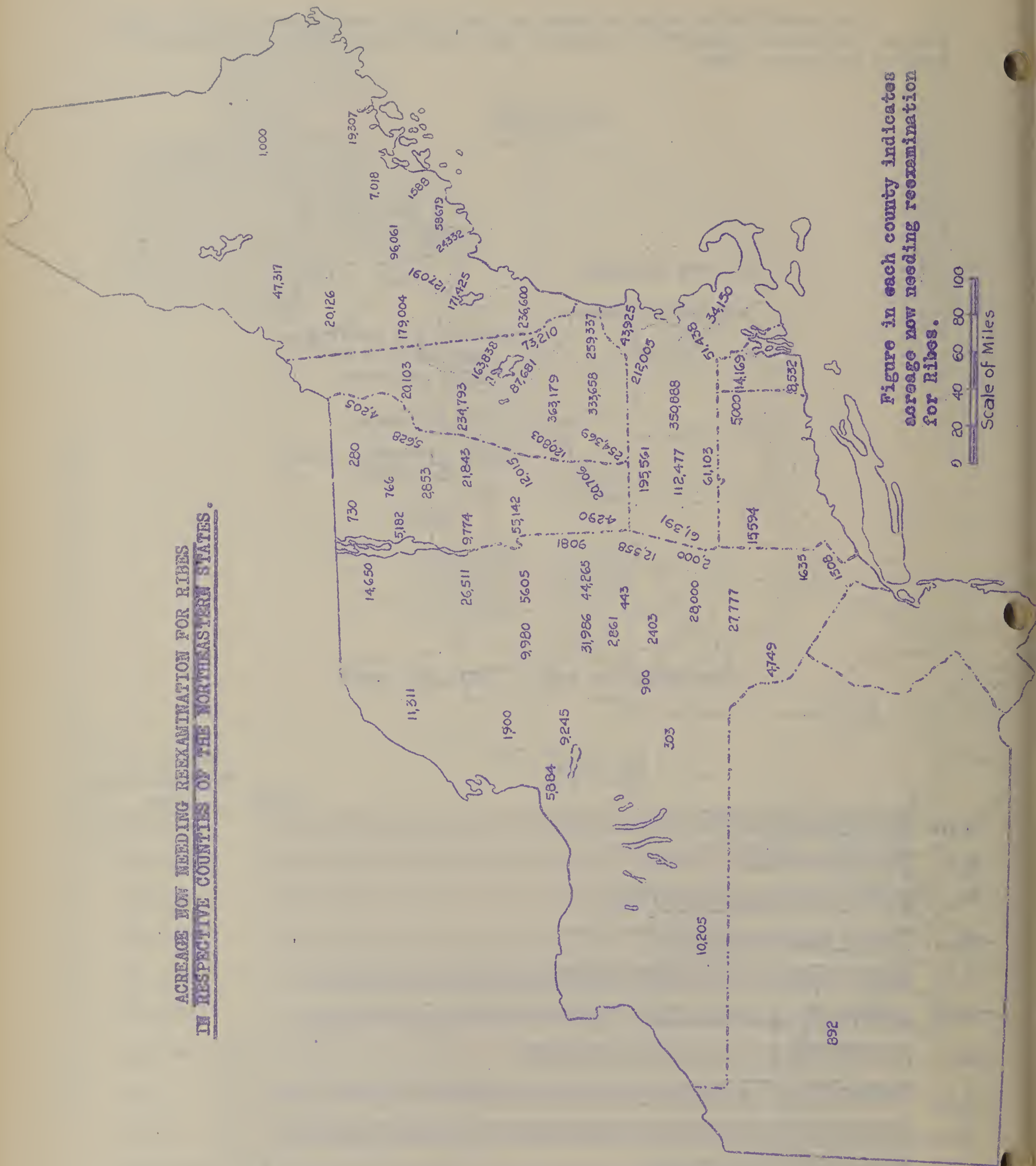


Figure in each county indicates average now needing reexamination for Ribes.

A vertical scale of miles, ranging from 0 to 100. The scale is marked every 20 miles (0, 20, 40, 60, 80, 100). The text "Scale of Miles" is written vertically along the right side of the scale.

EFFECTIVENESS OF BLISTER RUST CONTROL

1934 Studies

During 1934, plot and strip line studies were made to determine the amount of blister rust infection on white pines in protected and unprotected areas in the Northeastern States. The disease had existed in these tracts since 1914. Ribes eradication in the control areas had been limited to initial work performed during the period 1923-1930, inclusive. In protected areas in New Hampshire, New York, Vermont and Pennsylvania, 37 plots, comprising 72.6 acres, were laid out in 26 towns, and the white pines were carefully examined for infection. Out of a total of 19,835 pines, 4,435, or 22.4% were infected with 9,096 cankers. Even though the protection work had been conducted 4 to 11 years previous, only 2.2% of the total diseased trees became infected for the first time after the areas were cleared of Ribes, and only 2.2% of the total cankers originated after that time. Infection conditions in protected areas were also determined in 23 towns in New York and New Hampshire by examining all pines under 20 feet in height on 13 miles of rod-wide strip lines. A total of 5,530, or 35% of the 15,808 pines on the strips were infected with 7,847 cankers. Only 1.8% of these diseased pines became infected for the first time after the application of control measures, and only 2.3% of the cankers originated since protection was established.

In unprotected areas, plot studies were made in 35 towns in six states. The plots comprised 31.2 acres. Blister rust had infected 8760 white pines, or 49.9% of the 17,569 trees of this species. Most of the 22,238 cankers were of recent origin. In fact, 39.8% of them originated during 1930 and 1931, which shows the danger of delaying protection work.

1937 Studies

Similar plot studies were made in five of the Northeastern States during the latter part of 1937. The following basic requirements were established for the selection of these study plots:

- (1) Use representative areas, making no attempt to "hand pick" the location of the plots to prove the effectiveness of control.
- (2) Select sites containing pines chiefly under 20 feet in height, so they can be effectively examined.
- (3) Lay out plots in protected areas worked during the period 1922-1934. Do not make studies in areas examined for Ribes subsequent to 1934, since most of the infections that may have developed after that year would not be recognizable.
- (4) Select plots which contain some cankers originating prior to the application of control measures. Otherwise, there would be nothing to show the control work had been effective in checking the disease.
- (5) Choose plots having 600-900 foot protection zones.

In most instances, W.P.A. laborers were used to obtain the desired pine infection data for the 1937 studies. The majority of these men had no previous experience in this type of work and it was necessary to give them special training in the identification of blister rust infections and the method of determining the age of such cankers. The district blister rust control leaders spent as much time as possible supervising this project. Field inspections showed that in a few cases the W.P.A. personnel had difficulty in determining the age of the cankers, especially on suppressed pines. In such instances, the cankers would actually be older than the dates recorded. Consequently, some of the infections listed as originating subsequent to the Ribes eradication work may have developed prior to that time. Therefore the control work in the areas studied

During 1937 undoubtedly was even more effective than the results indicate.

A total of 91 plots, aggregating 87½ acres, were examined in protected areas in 33 townships in Maine, New Hampshire, Vermont, Rhode Island, and New York during 1937. These plots contained 66,351 white pines, and 11,610, or 17.5%, of the trees were infected with 15,548 blister rust cankers, only 10.0% of which originated after the areas were examined for Ribes. Only 8.6% of the diseased pines became infected for the first time after control measures were applied.

Studies were made during 1937 in unprotected areas in 51 townships in four states; a total of 71 plots, comprising 68½ acres, being examined. Blister rust had infected 12,691, or 23.7%, of the 52,635 pines on these plots. The danger of delaying control measures is clearly indicated by the fact that nearly 57 percent of the 21,288 blister rust cankers on these unprotected areas developed during the past seven years. It will be noted that 23.7% of the total pines were diseased in the unprotected plots as compared with 17.5% in the protected areas. This difference of only 6.2% in the percentage of pines infected is principally due to the fact that most of the heavily infected areas in this Region have been protected. It is extremely difficult to find suitable study plots in unworked areas in some of the districts as the initial control work has now been completed in the majority of the towns. Another factor to be considered in comparing infection conditions in the two types of areas is that most of the infection in the protected plots took place prior to the application of control measures.

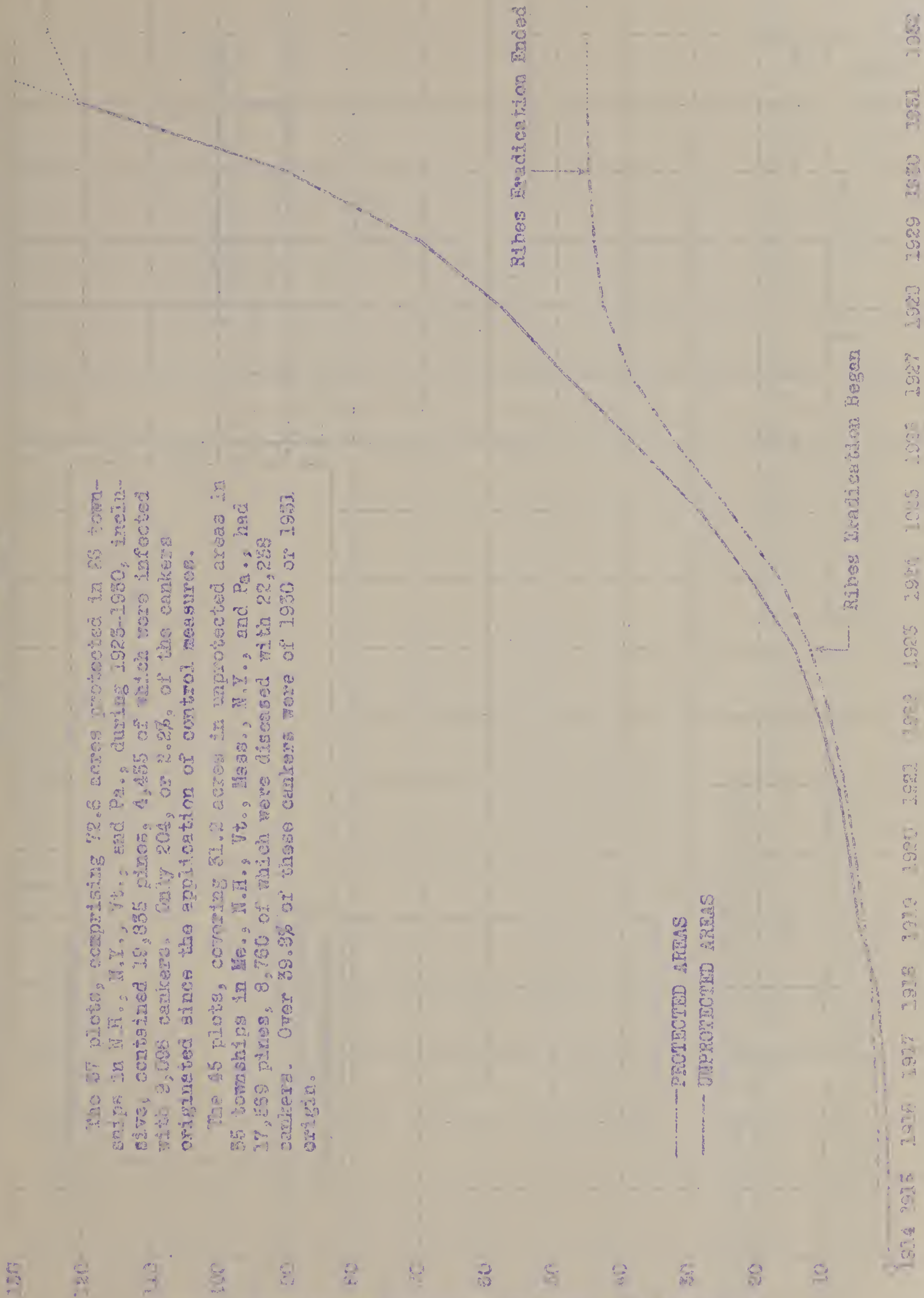
Infection conditions in the protected and unprotected areas are shown graphically in the following three charts.

BLISTER RUST INFECTION ON WHITE PINES IN PROTECTED AND UNPROTECTED AREAS IN NORTHEASTERN STATES

(1934 Field Studies)

The 37 plots, comprising 72.6 acres protected in 26 townships in N.H., N.Y., Vt., and Pa., during 1923-1930, included 19,835 pines, 4,455 of which were infected with 2,088 cankers. Only 204, or 2.2%, of the cankers originated since the application of control measures.

The 45 plots, covering 31.2 acres in unprotected areas in 35 townships in Me., N.H., Vt., Mass., N.Y., and Pa., had 17,559 pines, 8,760 of which were diseased with 22,288 cankers. Over 39.3% of these cankers were of 1930 or 1931 origin.



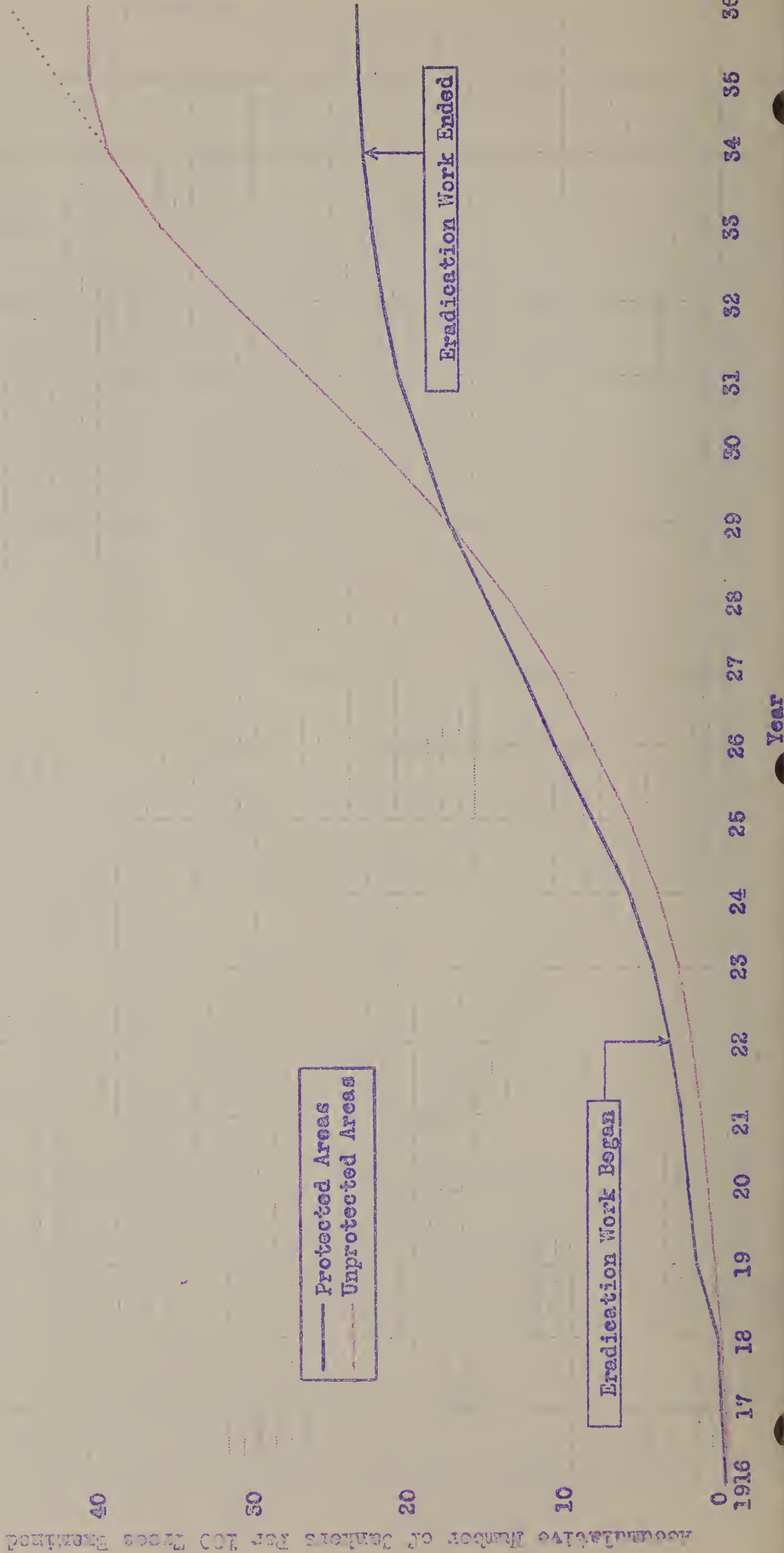
YEAR INFECTION ORIGINATED

BLISTER RUST INFECTION ON WHITE PINES IN PROTECTED AND UNPROTECTED AREAS IN NORTHEASTERN STATES.

(Based on 1937 Studies in Maine, N.H., Vt., R.I., and N.Y.)

The 91 plots comprising 87½ acres protected in 58 townships in Maine, N.H., Vt., R.I., and New York during the period 1922-1934, inclusive, contained 66,351 white pines, 11,610, or 17.5%, of which were infected with 15,548 blister rust cankers. Only 10% of these cankers originated since the application of control measures.

The 71 plots, aggregating 68½ acres, in unprotected areas in 51 townships in Maine, N.H., Vt., and N.Y. had 52,635 pines, 12,691, or 23.7%, of which were infected with 21,288 blister rust cankers. Nearly 57 percent of these cankers originated during the past seven years.



EFFECTIVENESS OF RIBES ERADICATION IN CONTROLLING BLISTER RUST INFECTION ON WHITE PINES IN NORTHEASTERN STATES
(1934 and 1937 Field Studies)

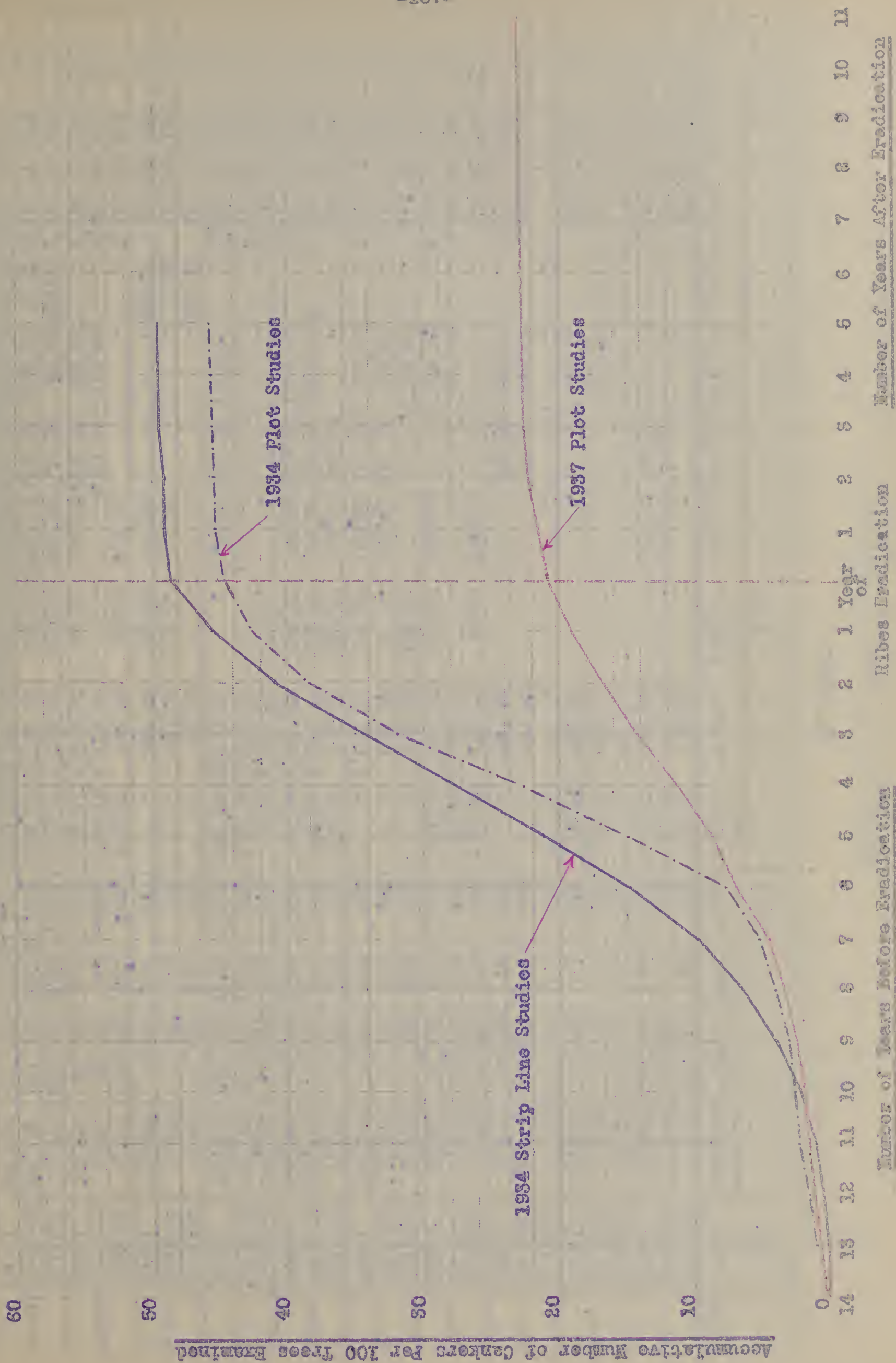


Table 97 - Summary of Nursery Sanitation Work Under All Programs in Northeastern States During Period 1930-1937, Inclusive.

By States

State	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost			W.P.A.	C.C.C.	S.C.S.	Total	Per Acre	
			Wild	Cult		Local Coop.	State	B.P.I.					Cost	Ribes Days
Me.	Initial	206	103,516	22	163	324.45	198.20	-	-	-	-	522.65	2.54	502.5
	Re-Erad.	1,104	10,631	-	258	156.18	184.60	-	461.25	93.00	-	895.03	.811	9.6
	Total	1,310	114,147	22	421	480.63	382.80	-	461.25	93.00	-	1,417.68	1.08	87.1
N.H.	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,613	7,791	1	267	172.28	308.71	-	-	-	420.12	901.11	.559	4.8
	Total	1,613	7,791	1	267	172.28	308.71	-	-	-	420.12	901.11	.559	4.8
Vt.	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	2,230	4,839	75	409	-	957.91	-	-	108.00	218.27	1,284.18	.576	2.2
	Total	2,230	4,839	75	409	-	957.91	-	-	108.00	218.27	1,284.18	.576	2.2
Mass.	Initial	723	30,369	112	139	140.80	212.79	10.00	196.34	-	-	558.93	.773	42.0
	Re-Erad.	4,541	4,746	179	896	89.20	2,849.19	-	-	-	957.49	3,995.98	.880	1.0
	Total	5,264	35,115	291	1,034	230.00	3,161.98	10.00	196.34	-	957.49	4,554.81	.865	6.7
R.I.	Initial	1,760	160	585	167	-	345.53	162.87	-	-	46.50	552.93	.511	0.1
	Re-Erad.	11,247	4,769	184	202	-	755.62	-	150.00	151.13	46.50	1,103.25	.098	0.4
	Total	13,027	4,929	749	369	-	1,099.13	162.87	150.00	151.13	93.00	1,656.18	.127	0.4
Conn.	Initial	7,157	5,839	152	273	204.32	552.69	139.92	120.00	65.28	-	882.21	.123	0.8
	Re-Erad.	45,310	10,489	878	2,264	557.04	3,064.44	610.87	677.80	1137.68	1355.79	7,403.62	.163	0.2
	Total	52,467	16,328	1030	2,542	761.36	3,417.13	750.79	797.80	1202.96	1355.79	8,285.83	.158	0.3
N.Y.	Initial	3,110	26,017	634	332	5.60	1,219.95	-	-	-	-	1,225.55	.394	3.4
	Re-Erad.	71,193	126,783	1244	5,333	246.57	14,179.37	-	2490.75	255.50	1225.32	10,398.01	.258	1.8
	Total	74,303	152,800	1878	5,715	252.17	15,399.32	-	2490.75	255.50	1225.32	19,623.56	.264	2.1
N.J.	Initial	795	2,000	114	109	-	99.45	-	-	-	-228.00	327.45	.412	2.5
	Re-Erad.	370	765	-	18	-	76.47	52.04	3.33	-	2.25	134.09	.154	0.9
	Total	1,685	2,765	114	127	-	175.92	52.04	3.33	-	-230.25	461.54	.277	1.7
Penn.	Initial	4,199	38,460	491	324	235.30	588.43	36.80	284.55	-	-	1,125.08	.238	9.2
	Re-Erad.	9,031	50,529	62	2682	289.15	2,681.81	-	-	2381.29	715.33	6,067.58	.672	5.6
	Total	13,230	88,989	553	2978	524.45	3,270.24	36.80	264.55	2381.29	715.33	7,192.66	.644	6.7
Totals	Initial	17,970	206,361	2090	1662	910.47	3,015.07	349.59	579.89	65.28	46.50	5,194.80	.289	11.6
	Re-Erad.	147,139	221,342	2623	12,299	1510.42	25,158.62	662.91	3783.13	4126.60	4938.82	2,2540,182.75	.273	1.5
	Total	165,109	427,703	4713	13,862	2420.89	28,173.69	1,012.50	4363.02	4191.88	4985.32	45,377.55	.275	2.6

(1) Town funds - balance of expenditures under heading "Local Cooperation" all individual funds.

(2) Includes \$1,184.20 state W.P.A. funds.

(3) Includes \$29.54 B.E. & P.Q. funds - balance of expenditures under this heading are from B.P.I. funds.

Table 98 - Summary of Nursery Sanitation Work Under All Programs in Northeastern States During Period 1930-1937, Inclusive.

By Years

Year	Type of Erad.	Acreage Examined	Ribes Pulled		Total Man Days	Cost										Per Acre	
			Wild	Cult.		Local Coop.	State	B.E.&P.Q. and B.P.I.	P.W.A.	C.C.C.	W.P.A.	S.C.S.	Total	Cost	Ribes	Man Days	
1930	Initial	4,973	110,704	182	447	528.77	905.19	-	-	-	-	-	-	1,433.96	.288	22.3	.09
	Re-Erad.	20,752	59,542	643	1,490	568.89	4,198.33	-	-	-	-	-	-	4,767.22	.230	2.9	.07
	Total	25,725	170,246	825	1,937	1097.66	5,103.52	-	-	-	-	-	-	6,201.18	.241	6.6	.06
1931	Initial	3,048	6,117	55	120	5.60	240.36	139.92	-	-	-	-	-	385.88	.127	2.0	.04
	Re-Erad.	26,776	26,126	1086	1,671	117.69	4,863.42	372.50	-	-	-	-	-	5,353.61	.200	1.0	.06
	Total	29,824	32,243	1141	1,791	123.29	5,103.78	512.42	-	-	-	-	-	5,739.49	.192	1.1	.06
1932	Initial	4,759	16,478	1222	565	50.65	1,588.32	172.87	-	-	-	-	-	1,811.84	.381	3.5	.12
	Re-Erad.	12,903	12,543	60	1,247	0.163	3,828.16	5.33	-	-	-	-	-	3,996.72	.310	1.0	.10
	Total	17,662	29,021	1282	1,812	213.89	5,416.47	178.20	-	-	-	-	-	5,808.53	.329	1.6	.10
1933	Initial	1,574	21,642	32	130	59.40	196.95	36.80	264.55	-	-	-	-	557.70	.354	13.7	.03
	Re-Erad.	18,662	36,643	363	1,713	0.331	4,608.74	255.54	-	709.40	-	-	-	5,905.63	.316	2.0	.09
	Total	20,236	58,285	400	1,843	391.35	4,805.69	292.34	264.55	709.40	-	-	-	6,463.33	.319	2.9	.09
1934	Initial	2,293	48,247	144	162	217.55	7.00	-	315.34	65.28	-	-	-	605.17	.264	21.0	.07
	Re-Erad.	18,144	30,642	62	1,904	-	2,432.22	-	3066.50	796.84	-	-	-	6,295.53	.547	1.7	.11
	Total	20,437	78,889	208	2,066	217.55	2,439.22	-	3381.84	862.12	-	-	-	6,900.73	.358	3.9	.10
1935	Initial	148	1,608	320	27	46.90	-	-	-	-	-	-	-	46.90	.317	10.9	.13
	Re-Erad.	18,489	30,513	179	1,269	34.75	1,987.27	-	716.63	849.93	-	-	-	3,528.58	.194	1.7	.07
	Total	18,637	32,121	499	1,296	81.65	1,987.27	-	716.63	849.93	-	-	-	3,635.48	.195	1.7	.07
1936	Initial	195	1,538	65	102	-	77.25	-	-	-	-	-	228.00	305.25	1.57	7.9	.03
	Re-Erad.	13,604	13,288	155	1,500	63.00	1,802.06	-	-	595.92	2930.79	-	5,391.77	.396	1.0	.11	
	Total	13,799	14,826	220	1,602	63.00	1,879.31	-	-	595.92	2930.79	228.00	5,697.02	.413	1.1	.12	
1937	Initial	980	27	70	92	1.60	-	-	-	-	-	-	46.50	48.10	.049	0.03	.01
	Re-Erad.	17,809	12,045	70	1505	230.90	1,438.43	29.54	-	1174.51	2008.03	2.25	4,883.66	.274	0.7	.06	
	Total	18,789	12,072	140	1515	232.50	1,438.43	29.54	-	1174.51	2054.53	2.25	4,931.76	.262	0.6	.03	
Total	Initial	17,970	206,361	2090	1562	910.47	3,015.07	349.59	579.89	65.28	46.50	228.00	5,194.80	.289	11.5	.09	
	Re-Erad.	147,139	221,342	2623	12,299	1510.42	25,158.62	662.91	3783.13	4126.60	4938.82	2.25	40,182.75	.273	1.5	.03	
	Total	165,109	427,703	4713	13,862	2420.89	28,173.69	1012.50	4363.02	4191.88	4985.32	230.25	45,377.55	.275	2.6	.03	

(1) includes \$7.73 town funds.

(2) " 148.45 "

(5) " 29.54 B.E. & P. Q. funds.

Table 99 - Summary of Nursery Sanitation Work in Northeastern States
During Period 1930-1937, Inclusive - By Programs.

Program	Type of Erad.	Total Acreage Examined	Ribes Pulled		Total Man Days	Cost					Per Acre					
			Wild	Cult.		Local Coop.	State	B.P.I. and BE&PQ	P.W.A.	C.C.C.	W.P.A.	S.C.S.	Total	Cost	Ribes	Man Days
Regular Cooperative	Initial	16,490	178,967	1930	1271½	879.72	2,930.82	349.58	-	-	-	-	4,160.13	252	10.9	.08
	Re-Erad.	111,578	157,264	2598	6988	1258.42	22,140.67	633.37	-	-	-	-	24,032.48	215	1.4	.03
	Total	128,068	336,231	4528	8259½	2138.14	25,071.49	982.96	-	-	-	-	28,192.59	220	2.6	.03
P.W.A.	Initial	415	25,597	3	147	30.75	7.00	-	579.89	-	-	-	617.62	149	61.7	.35
	Re-Erad.	15,422	14,285	96	1356	-	1,597.41	-	3783.13	-	-	-	5,380.54	349	0.9	.09
	Total	15,837	39,882	99	1503	30.75	1,604.41	-	4363.02	-	-	-	5,998.18	379	2.5	.09
C.C.C.	Initial	280	232	47	33	-	-	-	65.28	-	-	-	65.28	233	0.3	.12
	Re-Erad.	8,867	42,514	14	2651	-	736.30	-	4126.60	-	-	-	4,862.90	548	4.8	.30
	Total	9,147	42,746	61	2684	-	736.30	-	4191.88	-	-	-	4,928.18	539	4.7	.29
Federal W.P.A.	Initial	590	27	45	9	-	-	-	46.50	-	-	-	46.50	079	0.04	.01
	Re-Erad.	9,224	6,798	115	1053	252.00	642.24	-	-	-	-	-	4,648.86	504	0.7	.11
	Total	9,814	6,825	160	1062	252.00	642.24	-	-	-	-	-	4,695.36	478	0.7	.11
State W.P.A.	Initial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,798	335	-	243	-	-	-	-	-	-	-	1,184.20	659	0.2	.14
	Total	1,798	335	-	243	-	-	-	-	-	-	-	1,184.20	659	0.2	.14
S.C.S.	Initial	195	1,538	65	102	-	77.25	-	-	-	-	228.00	305.25	1.57	7.9	.52
	Re-Erad.	250	146	-	8½	-	42.00	29.54*	-	-	-	2.25	73.79	295	0.6	.04
	Total	445	1,684	65	110½	-	119.25	29.54*	-	-	-	230.25	379.04	852	3.8	.25
Totals	Initial	17,970	206,361	2090	1562½	910.47	3,015.07	349.58	579.89	65.28	46.50	228.00	5,194.80	289	11.5	.09
	Re-Erad.	147,139	221,342	2623	12,298½	1510.42	25,158.62	662.91	3783.13	4126.60	4938.82	2.25	40,182.75	273	1.5	.08
	Total	165,109	427,703	4713	13,862	2420.89	28,173.69	1012.50	4363.02	4191.88	4985.32	230.25	45,377.55	275	2.6	.08

*B.E. and P.Q. funds.

Table 100 - Status of Nursery Sanitation Work in Northeastern States
December, 1937.

State	Nurseries Where Protection Established and Being Maintained				Maximum Acreage of Control Areas	No. Nurseries Protected During 1937	No. White Pines Existing During 1937 in Nurseries Protected That Year
	Number						
	Federal	State	Private	Total			
Maine	-	1	1	2	409	1	167,000
N.H.	-	1	2	3	670	1	2,103,000
Vt.	-	1	-	1	700	-	-
Mass.	-	4	4	8	3,225	4	3,510,000
R.I.	-	-	5	5	3,043	5	1,707
Conn.	-	1	10	11	3,766	6	549,250
N.Y.	2	5	1	8	11,207	6	15,740,000
N.J.	1	1	-	2	795	1	10,000
Penna.	-	4	7	11	5,474	10	6,179,335
Totals	3	18	30	51	29,289	34	28,260,292

Twenty four other nurseries in the Northeastern States established sanitation zones, but abandoned them prior to 1937 for various reasons.

Thirteen nurseries applied for pine shipping permits during 1937 under Federal Quarantine #63. Ten of these nurseries qualified and were granted the necessary permits.

Table 101 - Special Ribes Nigrum Elimination Work Conducted Under All
Programs in Northeastern States During Period 1918-1937. Incl.

By Programs

Program		Regular	P.W.A.	W.P.A.	C.W.A.	E.R.A.	Totals
No. Properties Inspected		1,082,802	6,157	61,849	195,750	240,335	1,586,893
No. Patches Located		14,226	39	482	5,404	25,858	46,009
No. Ribes Pulled	Nigrum	85,618	7,486	1,956	-	7,110	102,170
	Other Cult.	20,550	-	412	-	23,701	44,663
Total		106,168	7,486	2,368	-	30,811	146,833
Total Man Days		14,150	375	438	1,850	11,675	28,488
Cost	Individuals	2,351.80	777.00	242.90	-	-	3,371.70
	Towns	-	-	-	-	901.00	901.00
	State	59,541.69	52.25	-	-	601.66	60,195.60
	B.P.I.	4,422.95	-	-	-	-	4,422.95
	P.W.A.	1,386.06	581.54	-	348.24	654.55	2,970.39
	C.C.C.	-	-	-	-	218.40	218.40
	W.P.A.	-	-	2256.60	-	-	2,256.60
	C.W.A.	-	-	-	8626.21	-	8,626.21
	E.R.A.	-	-	-	-	59,568.50	59,568.50
	Total	67,702.50	1410.79	2499.50	8974.45	61,946.11	142,531.35
% of Total		47.5	1.0	1.7	6.3	43.5	100.0

C.W.A. project consisted of location work only.

Table 102 - Special Ribes Nigrum Elimination Work Conducted Under All Programs
In Northeastern States, 1918-1937, Inclusive

(By States)

State		Mass.	R. I.	Conn.	N.Y.	Totals
No. Properties Inspected		635,012	110,137	313,344	523,400	1,586,893
No. Patches Located		6,295	1,917	32,695②	5,102	46,009
No. Ribes Nigrum		41,557①	16,219	7,464	36,930	102,170
Other Cult.		412	1,093	42,397	761	44,663
Pulled Total		41,969	17,312	49,861	37,691	146,833
Total Man Days		6,307	1,929	14,610	5,142	28,488
Indiv.		3,371.70	-	-	-	3,371.70
Towns		-	-	901.00	-	901.00
State		20,628.69	9,178.55	3,110.99	27,277.37	60,195.60
B.P.I.		100.00	675.53	3,647.42	-	4,422.95
P.W.A.		550.04	473.30	1,915.05	31.50	2,970.39
C.C.C.		-	-	218.40	-	218.40
W.P.A.		2,256.60	-	-	-	2,256.60
C.W.A.		2,633.11	-	5,938.10	-	8,626.21
E.R.A.		-	-	59,563.50	-	59,563.50
Total		29,595.14	10,327.38	75,299.46	27,308.37	142,531.35
% of Total		20.8	7.2	52.8	19.2	100.0

(1) Includes 556 bushes pulled in connection with special black currant elimination project around nurseries in 1925 and 1926 at a cost of \$367.89 to the state.

(2) The survey in Conn. included all cultivated Ribes. It is estimated that the number of black currant patches in that state did not exceed 1500.

Table 103 - Status of Ribes Nigrum Elimination Work in Northeastern States
December 31, 1937.

State	Years Work Performed	Total Number Townships In State	No. Townships Where Black Current Elimination Work		No. Townships Where Black Currants Located But Not Eradicated
			Completed	Partially Completed	
Mass.	1930-1937, Incl.	355	346*	-	-
R. I.	1929-1933, Incl.	39	39	-	-
Conn.	1930-1935, Incl.	169	169	-	-
N. Y.	1928-1936, Inc.	1012	225	50	-
Totals	-	1575	779	50	-

* Nine additional townships on the islands adjacent to the mainland will not be worked.

In conjunction with the regular control activities in the other states, such bushes have been eradicated in the worked portions of the control areas. Few Ribes nigrum have been found in these latter states.

Table 104 - Blister Rust Canker Elimination Work Under All Programs
In Northeastern States, 1918-1937, Inclusive.

(By States)

State	Maine	N. H.	Vt.	Mass.	N. Y.	Penna	Totals
Period work performed	1932-37	1937	1935-37	1933-37	1935-37	1934-37	1932-37
Est. No. pines examined	147,192	28,581	172,697	4,731,944	935,069	645,928	6,661,411
No. fatally inf. pines cut down	9,793	5,731	35,612	26,623	123,285	30,617	231,661
No. pines treated for infection	19,604	638	14,029	15,697	123,034	83,076	261,078
No. cankers removed	Branch	41,172	711	15,118	20,806	158,848	492,604
	Stem	4,110	-	56	-	981	5,147
Total man days	2,380	219	1,677	7,402	8,132	5,309	25,109
Cost	Individuals	1,205.12	-	70.70	-	240.00	1,515.82
	Towns	-	-	380.00	443.00	-	823.00
	State	-	-	20.50	67.98	724.92	813.40
	Park Service	321.04	-	-	-	-	321.04
	C. C. C.	3,291.61	-	-	-	8,203.09	11,494.70
	W. P. A.	-	779.37	4,924.65	7,621.67	32,334.40	45,639.09
	C. W. A.	-	-	-	24,255.74	-	24,255.74
	Total	4,817.77	779.37	5,395.85	32,388.39	33,299.32	88,002.68
% of Total		5.5	0.9	6.1	36.8	37.8	100.0

Table 105 - Blister Rust Canker Elimination Work Under All Programs
in Northeastern States, 1918-1937, Inclusive

By Programs

Program		Regular	C.C.C.	W.P.A.	C.W.A.	Total
Period work performed		1932-1937	1933-1937	1935-1937	1933-1934	1932-1937
Est. No. pines examined		96,464	619,743	1,297,204	4,648,000	6,661,411
No. fatally inf. pines cut down		7,180	30,968	176,210	17,303	231,661
No. pines treated for infection		12,296	83,509	152,471	12,784	261,060
No. Cankers Removed	Branch	16,815	482,960	211,973	17,511	729,259
	Stem	1,665	2,526	956	-	5,147
Total man days		478	6,484	12,748	5,409	25,119
Cost	Individuals	1,275.82	-	240.00	-	1,515.82
	Towns	-	-	823.00	-	823.00
	State	-	-	813.40	-	813.40
	Park Service	321.04	-	-	-	321.04
	C.C.C.	-	11,494.70	-	-	11,494.70
	W.P.A.	-	-	48,778.94	-	48,778.94
	C.W.A.	-	-	-	24,255.74	24,255.74
	Total	1,596.86	11,494.70	50,655.34	24,255.74	88,002.64
% of Total		1.8	13.1	57.6	27.5	100.0

Table 106 - Pine and Control Area Mapping Conducted Under All Programs in Northeastern States During Period 1933-1947, Inclusive

(By States)

State	Acres Mapped	Acres Examined But Not Mapped	Miles Boundary Lines Painted	Man Days	Towns	State	C.C.C.	P.W.A.	W.P.A.	Cost			Total
										E.R.A. & C.W.A.	B.E. & P.Q.		
Ala.	1,517,239	2,992,414	1,720	18,923	-	2,983.62	16,956.86	6,538.14	64,951.25	-	17.60	-	91,447.17
Ar.	834,659	116,430	-	19,343	-	1,425.14	11,168.98	9,443.25	63,936.61	-	1.25	-	88,025.17
Cal.	1,002,799	1,461,060	663	11,668	495.20	1,214.87	3,940.45	1,946.18	40,203.94	-	-	-	47,800.71
Col.	429,692	607,571	623	8,714	1,795.60	773.69	-	2,898.14	34,281.05	3,112.25	5.51	-	42,866.21
Ill.	225,660	-	-	2,264	-	320.25	7,675.26	2,009.28	3,443.36	-	-	-	13,948.15
Ind.	449,212	2,611,319	397A	11,306	40.70	686.38	827.60	563.10	37,320.29	22,211.70	420.29	-	62,075.02
Iowa	2,178,796	810,679	2,399	20,076	-	6,417.28	2,388.49	14,559.60	76,830.38	-	25.11	-	100,270.71
Mich.	498,098	-	4,152	32,459	-	-	89,070.63	1,266.87	37,421.26	-	4.00	-	127,762.76
Mo.	7,136,155	8,599,523	9,954A	125,758	2,331.50	14,321.23	132,023.27	39,229.56	358,488.14	23,323.95	473.76	-	572,196.41

(1) Includes \$28,619.73 W.P.A. funds spent on special state project.

(By Programs)

Program	Acres Mapped	Acres Examined But Not Mapped	Miles Boundary Lines Painted	Man Days	Towns	State	C.C.C.	P.W.A.	W.P.A.	Cost			Total
										E.R.A. & C.W.A.	B.E. & P.Q.		
Regular	221,172	113,725	-	1,412	-	6,656.93	-	-	-	-	-	-	6,656.93
C.C.C.	913,142	324,924	1,773	33,523	-	189.59	132,023.27	-	-	-	-	-	132,217.86
W.A.	744,663	942,528	227	6,915	-	1,025.28	-	39,229.56	-	-	-	-	40,254.84
Federal													
P.A.	4,878,700	4,929,938	7,750	73,895	2,290.80	6,417.70	-	-	329,868.41	-	473.76	-	339,050.61
B.A.	213,971	2,139,370	-	4,205	-	-	-	-	-	2221.70	-	-	22,211.70
W.A.	45,761	34,138	-	592	-	-	-	-	-	3112.25	-	-	3,112.25
State													
P.A.	118,746	114,900	204A	5,216	40.70	31.68	-	-	28,619.73	-	-	-	28,692.11
State	7,136,155	8,599,523	9,954A	125,758	2,331.50	14,321.23	132,023.27	39,229.56	358,488.14	23,323.95	473.76	-	572,196.41

Table 107 - Status of Pine and Control Area Mapping in Northeastern States
December, 1937.

State	Number Townships in Control Area	No. Townships						Est. Man Days Required to Complete Mapping	Est. Cost to Complete Mapping
		Mapping Completed		Partly Completed		Spot Mapping Completed and Detailed Map- ping Partly Completed	No. Mapping Done		
		Spot Only	Detailed	Spot Only	Detailed				
Maine	435	-	210	-	30	-	195	14,703	\$ 49,990
N.H.	225	-	30	-	115	-	80	48,329	167,218
Vt.	239	-	98	-	10	-	131	8,294	24,052
Mass.	293	11	104	46	101	-	31	18,288	72,237
R.I.	15	-	7	-	5	-	3	234	1,071
Conn.	161	-	138	-	18	-	5	4,489	16,783
N.Y.	882	266	150	-	13	58	395	12,714	49,711
Penna.	657*	48	50	286	155	118	-	21,457*	89,475
Totals	2907	325	787	332	447	176	840*	128,508*	\$470,542
% Total	100.0	11.1	27.1	11.4	15.4	6.0	29.0	-	-

*In addition, there are 22 Pennsylvania counties, containing 573 townships, that may require some mapping. Although the known acreage of white pine in these 22 counties amounts to 4,120 acres, it is estimated that it would require 3,641 man days to locate and map this small amount of pine. Consequently, not much mapping in these counties appears to be practicable.

STATUS OF WHITE PINE AND CONTROL AREA MAPPING
IN THE NORTHEASTERN STATES - DECEMBER 31, 1937

Legend

Mapping Completed

- = Spot only
- = Detailed, or spot and detailed

Spot Mapping Completed, Detailed Partially Completed

Mapping Partially Completed

- = Spot only
- = Detailed, or spot and detailed

No Mapping Done

- = In township
- = In county, questionable whether needed

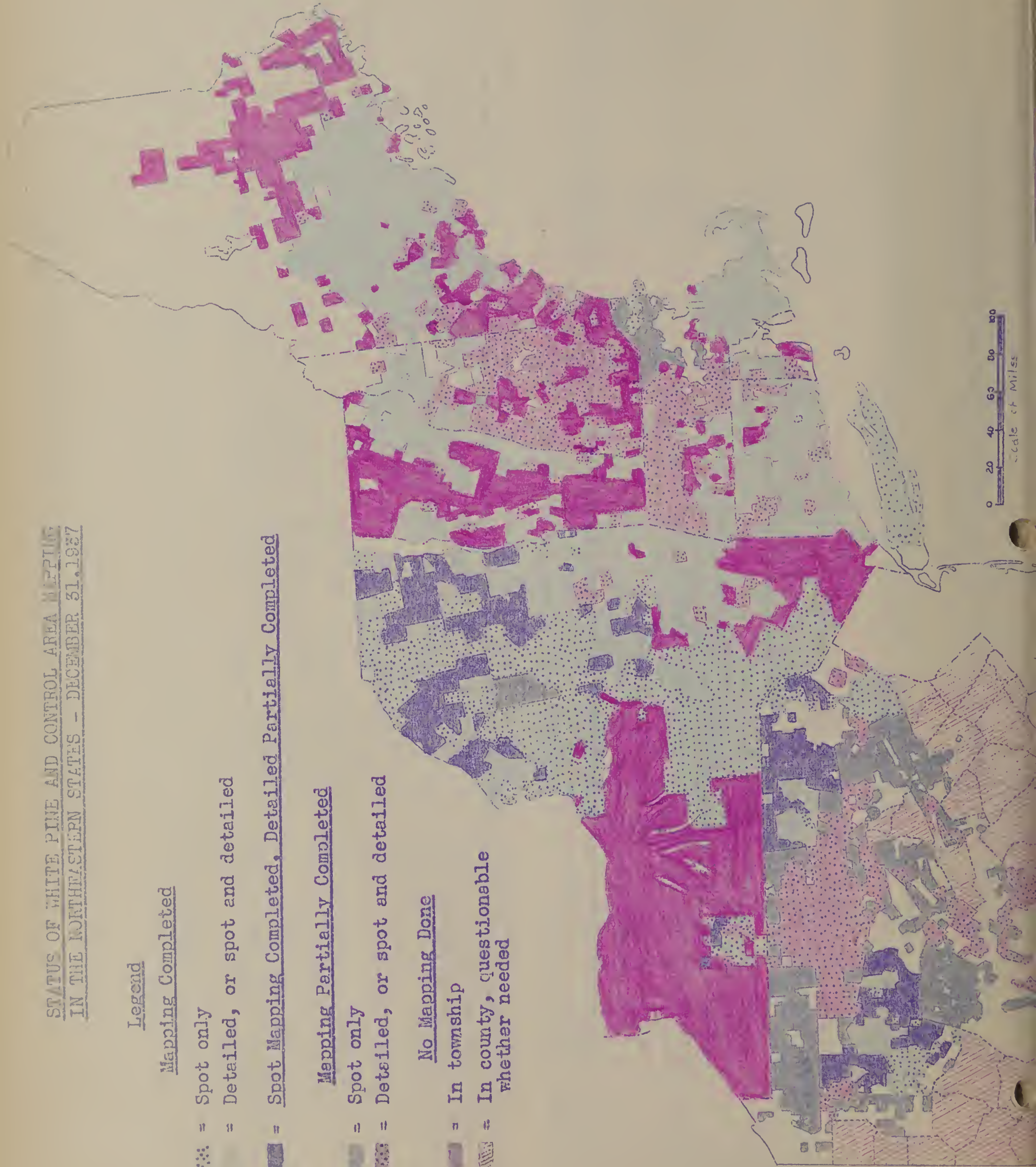


Table 108 - State Compensation Paid For Cultivated Ribes Destroyed
Under All Programs in Northeastern States
1918-1937, Inclusive

State	Total No. Cultivated Ribes Destroyed	No. Bushes Paid For	% Bushes Paid For	No. Persons Paid Compensation	Amount Paid in Reimbursement	Ave. Amount Paid Per Bush
Maine	144,631	-	-	-	-	-
N.H.	152,442	2,008	1.3	63	550.60	.274
Vt.	14,910	1,646	11.0	133	792.91	.482
Mass.	313,832	42,030	13.4	671	14,998.15	.357
R.I.	39,777	1,410	3.5	58	509.79	.362
Conn.	86,068	175	0.2	16	103.50	.591
N.Y.	155,995	16,162	10.4	1,148	5,555.94	.344
N.J.	1,842	-	-	-	-	-
Penna.	41,786	336	0.8	54	153.00	.455
Totals	951,283	63,767	6.7	2,143	22,663.89	.355

The Vermont data include \$86.25 compensation paid by individual cooperators in 1926 and 1933 to ten owners of cultivated Ribes for the removal of 181 bushes.

The Massachusetts data include \$5,655.05 paid in 1918 to 253 persons for 16,517 bushes destroyed in 1917 and 1918, mostly in 1917. It is impossible to separate the 1917 data.

The Connecticut data include \$76.25 paid in 1930 by individual cooperators (nurserymen) to 12 owners of cultivated Ribes for the removal of 114 bushes.

The Pennsylvania data represent payments made by individual cooperators (nurserymen) during 1936 and 1937.

No federal money has been paid for Ribes compensation.

Table 109 - Total Cost of All Cooperative Blister Rust Control Activities, By Projects, In The Northeastern States During Period 1918-1937, Inclusive.

State	Supervision and BRC Agent Activities	Ribes Eradication	Eradication Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Compen- sation	Blister Rust Canker Elimination	Pre- Erad. Surveys	Field Data and Misc.	Total
Maine	318,507.29	795,827.47	89,211.63	-	10,917.68	-	4,817.77	91,447.47	27,122.83	1,337,852.14
N.H.	491,205.10	1,060,413.36	91,143.99	-	901.11	550.60	779.37	86,025.23	56,081.77	1,787,100.55
Vt.	166,027.43	342,309.59	28,825.48	-	1,284.18	792.91	5,895.85	47,800.64	31,300.09	623,733.11
Mass.	352,257.93	551,490.75	17,241.95	29,595.14	5,069.66	14,998.15	32,388.39	42,866.24	51,541.92	1,097,450.11
R.I.	53,764.92	134,641.44	23,248.35	10,327.88	1,656.18	509.79	-	13,948.15	9,305.00	247,401.77
Conn.	130,155.50	251,288.61	41,940.47	75,299.46	8,285.83	103.50	-	62,075.06	103,435.29	672,584.77
N.Y.	538,003.04	1,903,534.72	289,596.25	27,308.87	19,623.56	5,555.94	36,012.48	100,270.36	282,825.15	3,202,730.01
N.J.	22,884.46	6,915.69	1,952.88	-	635.90	-	-	-	4,559.08	36,998.01
Penna.	108,521.63	686,449.81	136,595.61	-	7,192.66	153.00	11,321.94	127,762.76	10,735.14	1,088,732.55
Totals	2,181,327.30	5,732,871.44	719,756.61	142,531.35	55,616.76	22,663.89	90,715.80	572,196.41	576,907.27	10,094,586.83
%total	21.6	56.8	7.1	1.4	0.6	0.2	0.9	5.7	5.7	100.0

- (1) Includes \$9,500.00 (charge of \$500. per year) for nursery inspection work from 1918-1936, inclusive.
 (2) Includes \$514.85 for special nursery inspection work during 1933-1934.
 (3) Includes \$224.36 " " " 1932.

Table 110 - Total Cost of All Cooperating Agencies in The Northeastern States, During 1937-38, Exclusive.

State		Maine	N.H.	Vt.	Mass.	N.Y.	N.J.	Penna.	All States	
State Funds	State B.R. Approp.	\$110,353.94	\$264,770.32	\$55,640.13	\$237,312.90	\$1,150.35	\$16,124.30	\$90,854.75	\$2,032,142.24	
	Other State Approp.	11,236.40	20,992.97	-	52,552.87	72,152.75	643.35	377.11	119,015.10	
	Towns	104,396.62	333,476.19	14,811.36	11,611.22	-	-	-	534,704.75	
	Individuals	63,754.19	47,609.71	71,449.32	97,290.11	70,213.25	-	2,047.48	431,303.19	
	Counties	-	1,066.50	-	-	50,449.00	-	-	9,736.99	
	Total State Funds	309,741.15	723,942.39	141,900.85	397,446.10	1,771.24	16,828.15	93,279.34	3,177,407.37	
Federal Funds	Regular	R. P. L.	249,374.54	424,415.50	119,392.04	323,717.24	6,271.28	31,519.21	1,791,601.63	
		R. E. & P. L.	16,602.36	16,650.31	12,205.33	16,360.21	2,949.64	12,523.89	104,400.76	
		Park & Forest Services	9,639.44	1,946.91	-	-	-	-	779.77	12,366.12
		Sub-Total	276,116.34	453,012.72	131,597.37	340,077.45	9,220.92	44,822.87	1,908,368.56	
		S. C. G.	262,627.30	146,627.20	74,703.04	106,711.22	346.50	603,026.95	1,473,511.30	
	Special	S. W. A.	69,128.95	63,597.81	32,163.20	52,720.20	3,031.03	45,474.63	397,763.96	
		S. P. A. - State Program	-	-	-	701.90	-	-	90,706.54	
		S. P. A. - Federal Program	411,811.10	394,921.01	243,359.30	218,350.00	7,290.71	292,239.03	2,377,243.73	
		C. V. A.	-	-	-	31,117.00	-	-	37,072.18	
		M. R. A.	1,428.30	-	-	10,274.00	-	-	10,683.10	
		A. P. A.	-	-	-	-	11,558.00	-	4,254.65	15,812.65
		S. C. S.	-	-	-	-	712.72	230.25	5,254.22	7,446.15
		N. Y. A.	-	-	-	-	-	-	220.37	220.30
		Sub-Total	751,994.65	613,145.42	350,230.54	359,370.00	10,248.94	950,470.24	5,038,310.49	
		Total Federal Funds	1,023,110.99	1,063,158.14	431,827.91	699,447.25	20,169.36	996,453.51	6,917,178.96	
Grand Total		1,327,852.14	1,737,100.53	623,736.17	1,097,146.10	1,770.37	36,993.01	1,083,732.55	10,094,536.83	
Percentage of Total		13.2	17.7	6.2	10.9	0.7	0.4	10.3	100.0	

Table 111.- Acreage of White Pine in Northeastern States

(Based on cartographical survey of 1925-1927, except in New Jersey where figures represent estimates made in 1934.)

State	a.-Pure White Pine (80-100% white pine)		b.-Mixed Types Con- taining White Pine		c.-Other Types* with 1-20% White Pine Above Re- stocking size and also Pine Restocking	Total* (a+b+c)	White Pine Restocking (All types except pure pine under 6" DBH)
	6" and Over DBH	Under 6" DBH	30-79%	21-29%			
Me.	304,790	284,490	794,915	248,258	976,458	2,608,911	1,703,727
N.H.	263,526	548,225	278,366	296,439	157,477	1,544,033	396,558
Vt.	29,923	73,453	160,147	78,415	225,146	567,084	296,733
Mass.	162,113	288,686	273,266	63,765	170,734	958,564	333,085
R. I.	13,343	436	-	-	59,417	73,196	59,417
Conn.	32,697	40,729	66,551	57,794	18,383	216,154	55,071
N. Y.	214,600	457,171	242,218	231,699	170,269	1,315,957	286,104
N.E. & N. Y.	1,020,992	1,693,190	1,815,463	976,370	1,777,884	7,283,899	3,128,695
N. J.	600	1,500	2,000	1,500	2,000	7,600	3,000
Pa.	51,854	40,043	28,078	98,023	157,630	375,628	226,292
All States	1,073,446	1,734,733	1,845,541	1,075,893	1,937,514	7,667,127	3,357,987

*Excludes those "other types" which have 1-20 percent white pine (above restocking size) but do not contain white pine restocking.

A total of 70,647,453 white pines have been distributed from state nurseries in the Northeastern States during the period 1931 to 1937, inclusive, as follows: Maine, 112,200; New Hampshire, 3,524,162; Vermont, 641,985; Massachusetts, 6,591,850; Connecticut, 300,287; New York, 50,464,030; New Jersey, 1,009,800; and Pennsylvania, 8,003,639.

Table 112. - Commercial Value of White Pine in Northeastern States

State	Pure White Pine (80-100% white pine)		Mixed Types Containing White Pine		White Pine (Above re- stocking size) in Other Types*	White Pine Restocking in all types Except "Pure Pine Under 6" DBH"	Total (Including White pine restocking)
	6" and Over DBH	Under 6" DBH	30-79%	21-29%			
Me.	\$ 34,136,480	\$ 7,122,250	\$ 44,515,240	\$ 6,951,224	6,835,206	\$2,559,199	\$102,109,599
N. H.	29,514,912	13,705,625	15,588,496	8,300,292	1,102,339	707,534	68,919,198
Vt.	3,351,376	1,836,325	8,968,232	2,195,620	1,576,022	412,279	18,339,854
Mass.	18,156,656	7,217,150	15,302,896	1,785,420	1,195,138	599,752	44,257,012
R. I.	1,494,416	10,900	-	-	415,919	80,818	2,002,053
Conn.	3,662,064	1,018,225	3,726,856	1,618,232	128,681	86,358	10,240,416
N. Y.	24,035,200	11,429,275	13,564,208	6,487,572	1,191,883	419,084	57,127,222
N.E. & N. Y.	114,351,104	42,329,750	101,665,928	27,338,360	12,445,188	4,865,024	302,995,354
N. J.	67,200	37,500	112,000	42,000	14,000	3,000	275,700
Pa.	5,807,648	1,001,075	1,572,368	2,744,644	1,103,410	226,292	12,455,437
All States	\$120,225,952	\$43,368,325	\$103,350,296	\$30,125,004	\$13,562,598	\$5,094,316	\$315,726,491

*Excludes those "other types" which have 1-20 percent white pine (above restocking size) but do not contain white pine restocking.

Basis for estimating value of merchantable white pines: stumpage figured at normal value of \$7.00 per M - average contents per acre, pure merchantable white pine = 16 M board feet; mixed white pine, 30-79% = 8 M board feet; mixed white pine, 21-29% = 4 M board feet; and white pine, above restocking size, in other types = 1 M board feet. Pure stands of white pine under 6" DBH given normal value of \$25.00 per acre. Basis for estimating normal per acre value of white pine restocking: degree of restocking, light = \$1.00, medium = \$2.00, heavy = \$3.00.

Table 113 - Relation of Total Cost of All Control Activities to Total Commercial Value of White Pine in Northeastern States

State	Acreage of White Pine	Commercial Value of White Pine	Total Cost of All Control Activities*	Percentage of Total Commercial Value Represented by Cost of All Control Activities	Percentage of Total Control Area Protected	
					Initial	Reerad.
Maine	2,608,911	\$102,109,599.	\$ 1,337,852.14	1.3	80.6	30.4
N.H.	1,544,033	68,919,198.	1,787,100.53	2.6	91.3	26.4
Vt.	567,084	18,339,854	623,736.17	3.4	49.8	45.4
Mass.	958,564	44,257,012.	1,097,450.13	2.5	97.6	38.8
R.I.	73,196	2,002,053.	247,401.71	12.4	91.4	91.9
Conn.	216,154	10,240,416.	672,584.72	6.6	64.5	92.6
N.Y.	1,315,957	57,127,222.	3,202,730.87	5.6	62.7	61.1
N.J.	7,600	275,700.	36,998.01	13.4	46.9	100.0
Pa.	376,628	12,455,437.	1,088,732.55	8.7	33.0	98.5
Totals	7,667,127	\$315,726,491.	\$10,094,586.83	3.2	76.1	40.2

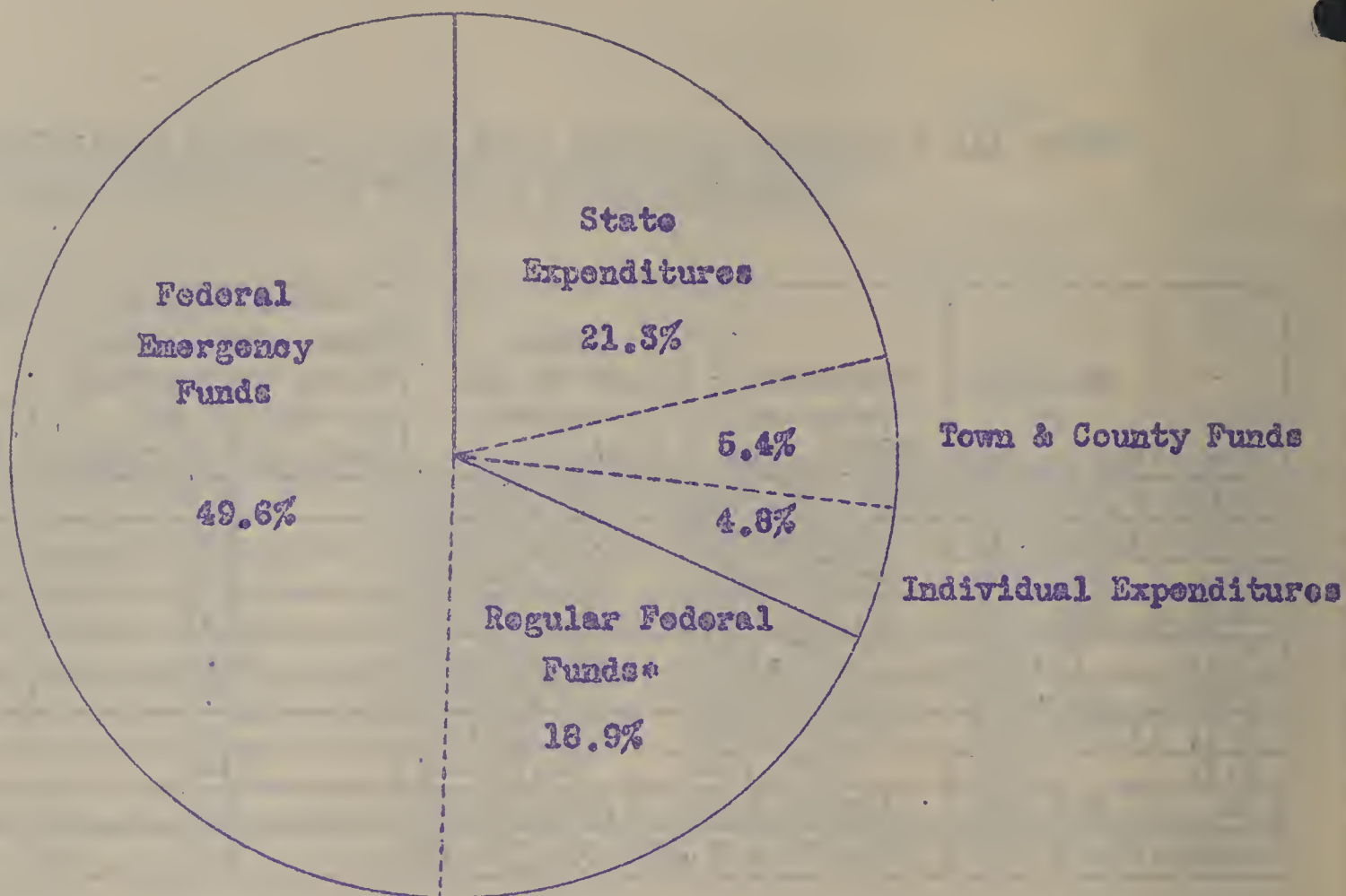
*The comparatively high percentage figures in Rhode Island, New Jersey and Pennsylvania may be attributed to the following facts. In Rhode Island, over a hundred thousand acres of potential pine land has been cleared of Ribes in addition to the protection of the pine area. The value of the potential pine acreage is not, of course, included in the pine values. In New Jersey and Pennsylvania, the pine areas are small and scattered necessitating larger proportionate protection zones. In both states, practically all the control work has been performed by inexperienced men employed on Emergency Programs. The cost of control activities in Pennsylvania and New Jersey prior to the beginning of Ribes eradication work in 1929 and 1934, respectively, is included in the total expenditure figures. Only 16,742 acres have been initially worked in New Jersey. The major control activities in that state comprise scouting, field studies, nursery sanitation, and informational and service work. In Pennsylvania, the Ribes are numerous and of large size. Many of the pine areas are in remote hilly sections at considerable distance from roads.

The percentages of the total control area protected for the re-eradication work are based on the acreages now needing re-examination for Ribes.

The total cost includes \$5,008,810.40 Federal Emergency money expended on control work since 1933. This amount represents 49.6 percent of the total expenditures since 1918. A portion of the Emergency money could properly be charged to relief rather than control activities.

The basis for acreages and values of white pine are given on page 152.

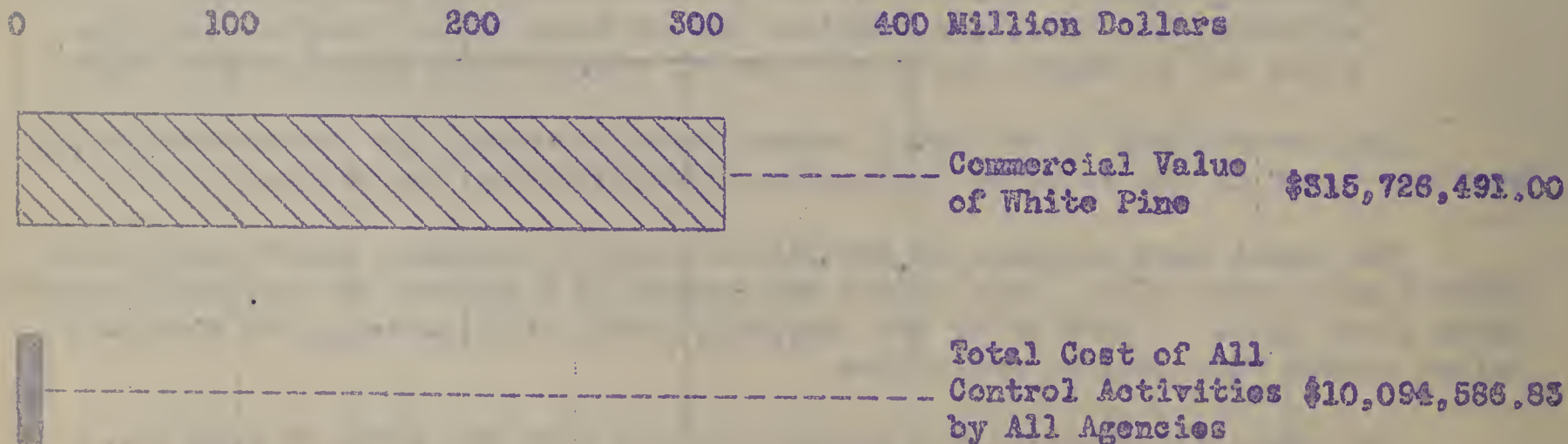
COOPERATIVE BLISTER RUST CONTROL EXPENDITURES
IN NORTHEASTERN STATES, 1918-1937, INCLUSIVE.



Total Expenditures - \$10,094,586.83

*Includes \$12,366.12 by Forest and
Park Services

Relation Commercial Value of White Pine to Total Cost
of All Control Activities in Northeastern States
1918-1937, Inclusive



Total control cost represents 3.2% commercial pine value.

Table 114. - Per Acre Cost of Ribes Eradication Work in Northeastern States
During Period 1918 to 1937, Inclusive.

(Based on Ribes eradication costs only and on the total costs
of all control activities by all cooperating agencies)

State	Total Acreage Cleared of Ribes (Initial & Re-Erad.)	No. Ribes Pulled		Total Cost of Ribes Eradication*	Total Cost of All Control Activities	Ribes per Acre (Wild only)	Cost Per Acre			
							Eradication Costs Only		Total Expenditure All Projects	
		Wild	Cult.				1918 to 1937	Ave. Per Year	1918 to 1937	Ave. Per Year
Me.	3,666,872	49,125,301	144,609	\$796,827.47	\$1,337,852.14	13.4	.217	.011	.365	.018
N.H.	3,769,956	62,273,180	152,441	1,060,413.56	1,787,100.53	16.6	.281	.014	.474	.024
Vt.	489,844	10,322,923	14,835	342,309.59	623,736.17	21.1	.699	.035	1.27	.064
Mass.	2,830,729	19,316,280	271,572	551,490.75	1,097,450.13	7.3	.210	.011	.417	.021
R.I.	569,811	528,376	21,718	134,641.44	247,401.71	0.9	.236	.012	.434	.022
Conn.	619,354	5,165,152	36,177	251,288.61	672,534.72	8.8	.406	.020	1.09	.055
N.Y.	2,349,425	57,228,974	116,428	1,903,534.72	3,202,730.87	24.4	.810	.041	1.36	.068
NE & NY	14,095,991	203,960,186	756,776	5,039,505.94	8,968,856.27	14.5	.353	.018	.636	.032
N.J.	18,159	64,736	1,728	6,915.69	36,998.01	3.6	.331	See explanation below		
Pa.	502,763	29,855,435	41,233	686,449.81	1,088,732.55	69.4	1.37	"	"	"
Totals	14,616,913	233,880,357	799,737	5,732,871.44	10,094,586.83	16.0	.392	-	-	-

*Excludes nursery sanitation and Ribes nigrum elimination.

Per acre data for Pennsylvania and New Jersey were omitted from the above table because Ribes eradication work in those states was not begun until 1929 and 1934, respectively. In New Jersey, only a few thousand acres have been cleared of Ribes; the control activities being confined chiefly to pine and infection scouting, field studies, nursery sanitation, and informational and service work by part-time employees. No satisfactory comparison can be made between the per acre costs in the various states, due to numerous factors directly affecting the cost of the eradication work. The lower per acre cost in Maine, Massachusetts, Rhode Island and New Hampshire may be attributed in part to the localization of the Ribes in certain sections and that under the Regular program large portions have been worked by scouting methods. In New York, Pennsylvania, and Vermont, the cost has been increased by the size and abundance of the Ribes, and in the first two states by the ruggedness of the topography and the inaccessibility of many of the control areas. The small size and scattered distribution of the pine areas in Pennsylvania, New Jersey, and Connecticut has likewise increased per acre costs in these states. Most of the control work in Pennsylvania and New Jersey has also been performed under various Emergency programs with an inexperienced personnel. In 1933, the per acre cost in New England and New York, based on Ribes eradication work only and on the total area worked up to that time, amounted to 22.7 cents. By 1937, it had increased to 39.2 cents chiefly due to the less efficient work performed under the Emergency programs.

The compilation of per acre values on the basis of total costs of all control activities by all cooperating agencies is probably not justifiable, because such expenditures include among other items the cost of field surveys and studies, informational and service activities, nursery sanitation, canker elimination, and Ribes nigrum elimination which are not directly related to the regular Ribes eradication work and cannot in most instances be figured on a per acre basis.

BLISTER RUST CONTROL ACTIVITIES

W.P.A. PROGRAM

NORTHEASTERN STATES - JULY 1935 TO DECEMBER 31, 1937.

E. C. Filler,
Senior Pathologist,
Division Plant Disease Control.



BLISTER RUST CONTROL ACTIVITIES UNDER THE WPA PROGRAM
IN THE NORTHEASTERN STATES

Allotments

WPA funds totaling \$2,433,524.08 were allocated for blister rust control work in the Northeastern States during the period July 25, 1935 to December 31, 1937. The allotments by states were as follows:

Maine.....	\$412,382.49
New Hampshire.....	396,877.44
Vermont.....	244,844.72
Massachusetts.....	262,509.00
Rhode Island.....	29,907.52
Connecticut.....	64,641.32
New York.....	716,879.69
New Jersey.....	7,338.49
Pennsylvania.....	293,403.41
Sub-Total.....	2,427,684.08
Administrative.....	5,840.00
Grand Total.....	\$2,433,524.08

The figures listed above represent the aggregate amount of money provided through various allotments to each state. The original allotments were made July 22, 1935. On June 10, 1936, a recision was made in each state. The withdrawals were largely offset July 8, 1936 through increased allotments by the President. Again on July 28 and September 15, the President awarded additional money. Also during 1936, the Bureau, with the approval of the WPA, made certain adjustments in funds between states on August 24, November 27 and December 31. Further adjustments and increases were made during calendar year 1937. Table gives detailed information on the various allotments to the states. The homeopathic procedure in allotting funds made it somewhat difficult in planning field activities, but did not cause any serious complications.

Purpose of Allotments

The specific objectives have been outlined as follows:

1. To protect our national resources of white pine from the blister rust by the systematic, thorough, and efficient elimination of Ribes from definite areas.
2. To employ in the locality of the work as many of the persons on public relief as may effectively be used.
3. To distribute opportunities for work as widely, geographically, and as equitably as may be practicable.
4. To aid in all possible ways the accomplishment of the other purposes of the Emergency Relief Appropriation Acts of 1935-1937, inclusive.

Economic and Social Value of Project

The white pine crop in the Northeastern States comprises over 7½ million acres and has a normal commercial value of \$315,000,000. Millions of white pines are also being planted each year in connection with reforestation activities. The scenic, recreational, and watershed protection value of this crop is likewise of tremendous importance.

The WPA program has played an important part in the protection of this valuable pine crop from blister rust, since under this program 1,909,609 acres (containing 901,290 acres of white pine) have been cleared of Ribes bushes, the alternate host of the disease. Thousands of acres of pine reproduction have been protected, thus assuring the development of future commercial stands. The program has made possible the systematic working of large areas, rather than individual units. It has also permitted the application of control measures on lands where such work was urgent, rather than basing the selection on local cooperation. It has been possible to work many remote areas, also tracts containing an abundance of Ribes, where the cost of control had prevented prior application of protection measures. This control work has served to eliminate many sources of infection that otherwise would have persisted. The maintenance of protection on areas initially worked several years ago was also materially advanced by the WPA program, particularly in townships where such activities would have been impossible without emergency funds.

The expenditure to December 31, 1937 of \$2,419,784.07 WPA money on blister rust control in the rural portions of the Northeastern States has given 8,971 security-wage workers 4,475,537 man hours of useful self-respecting employment, directly benefiting persons who would otherwise have been on town relief, especially in communities where there was a lack of other projects of a permanent public benefit. Our project was especially adapted to the employment of relief labor. It provided healthful employment where skill, except for supervision, was not necessary. The location of the work was such, that in most instances, transportation was not required in getting the men to and from work. In fact, the entire cost to the Government for transporting security-wage workers up to December 31, 1937 amounted to only \$39,537.00. Most important of all, wages constituted 94.9 percent of the entire cost of the program. The expenditures have also materially aided in stimulating local business by increasing the amount of money in circulation.

Estimating that each of the 9,096 WPA employees that have worked on our project had three dependents, a total of 36,384 individuals were, at some time during the program, being fed, sheltered and clothed from wages earned in connection with this work. When the project was initiated very acute conditions in many communities were brought to our attention. Suffering from hunger was commonly noted. It was a frequent occurrence for workers to report for duty with little or no breakfast and without lunch or funds to provide one. The elimination of these conditions, which disappeared gradually as the workers received reimbursement for their services, had a social value impossible to estimate.

The successful performance of Ribes eradication work required the closest cooperation between the individual members of the field units. It has been the constant aim of the district leaders and the local supervisors to develop this cooperative spirit and their efforts have met with unusual success. This has not only measurably increased the efficiency of the work in hand, but the schooling that the workers have had in this cooperative effort should have a helpful effect upon them as members of the community in which they reside.

One of the outstanding indirect accomplishments of this work has been to demonstrate to many individuals that the Bureau requires of its personnel full attention to the duties at hand. Many of the laborers originally had the idea that public work in general was not too laborious; not too important perhaps. They have gained a far different understanding as a result of their experience on the blister rust control project. Workers who have been unwilling to carry out instructions have been dealt with summarily to the credit of public work in general.

The enforcement of regulations forbidding smoking while working in the woods has also had a marked effect on the men. It has effectively demonstrated the need for the exercise of care to prevent the destruction of our forests through the careless use of smoking materials.

The interest displayed by the average worker has been surprisingly keen, particularly when the foreman in charge has successfully stimulated a competitive spirit among the members of his crew.

Nearly 9,100 men have received training in Ribes eradication work, and many of these persons will be available for similar work in the future. The training should also enable many of these men to maintain control of blister rust on their own properties.

Responsibilities and Direction of Work

The WPA funds with which we are concerned were specifically allocated to the United States Department of Agriculture, the Bureau of Entomology and Plant Quarantine, for expenditure by the Division of Plant Disease Control. The work is handled directly by the Department cooperating with the State WPA and ERS officers for labor assignments and with the U. S. Treasury for accounting and disbursing.

The WPA blister rust control work in each state is performed under the general plan embodied in the Memoranda of Understanding existing between the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture and cooperating States, and is fitted in with other control activities in the states so as to make a unified, coordinated work program. The Bureau, however, carries direct responsibility for both the fiscal and the technical phases of the work. The state forester or other collaborator in the state is consulted as to policies and is kept fully advised at all times. The state official administering the state plant pest laws enforces such state laws as may be available for the effective prosecution of blister rust control work, and deputizes the cooperative employees to permit the destruction of such pine and Ribes as may be necessary and as provided by state laws. Federal money cannot be used to pay compensation for plants destroyed.

The Senior Pathologist of the Regional Office was made "Project Manager" for the WPA blister rust control program in the Northeastern States and was delegated the funds allotted for the respective nine states in the region. He was also given authority to obtain services and supplies and to incur expenditures under each state allotment. Letters of authorization were issued by the Bureau to him and to each state leader. These men in turn issued monthly sub-letters of authority where necessary to employees working under their direction.

Field Supervision

The successful results under the WPA program can be attributed in a large extent to the availability of a trained force of state and district leaders and supervisors to direct the project in each district. Through the services of these men, it was possible to get the WPA employees working in the field within a few days after funds became available. These leaders were accustomed to supervising large groups of men and had little difficulty in adapting themselves to the WPA program. Most of the district leaders (the number varied from 30 to 27) have

Civil Service status and were paid \$2000 per year. In addition, all of these men were allowed expenses when away from headquarters. The supervisors (maximum number 32) were paid \$135 per month plus reimbursement on a 5¢ per mile basis for use of their personally-owned machines on official work. The supervisors were not granted any per diem allowance and were employed only during the Ribes eradication season, except in a few instances where they were retained on mapping projects during the winter of 1935-1936.

Qualifications Established for Labor

In submitting requisitions for WPA labor in the field, the following qualifications were established:

1. Must be physically able to work all day.
2. No serious defects of eyesight.
3. Stable personality, good habits, good conduct, thoroughness, industriousness, reliability and willingness.

No restrictions were placed on the age of the workers, except the WPA regulation that none of the employees could be under 16 years of age. Regardless of relief status or any other consideration, WPA laborers were released when unable or unwilling to give full effort and value. The cooperation of the MRS and WPA offices usually prevented our project from being supplied with men obviously unsuited for the work to be done. It is estimated that at least 10 percent of the workers in 1935 had previous blister rust control experience, while during 1936 and 1937 about 50 percent were experienced. In the field, only two classes of labor were used during the Ribes eradication seasons - unskilled laborers and crew foremen.

Source of Labor

All labor was secured, prior to August 15, 1936, direct from the local offices of the National Reemployment Service, at least 90 percent of the workers being taken from certified relief rolls. One of the outstanding experiences in the entire WPA program has been the evidence of mutual cooperation between the MRS and our district leaders. The closest cooperation prevailed from the inception of the work. It was through the complete cooperation of the MRS that, at the beginning of the program, we were able to have workers in the field within a few days after the release of the allotments. This was a real accomplishment; when it is appreciated, that in most sections at that time not a single copy of the necessary WPA and MRS employment record forms had been received. The local offices of the MRS have cooperated with the district leaders 100 percent. The facilities of the local MRS offices have seldom been such that they could keep their records up to date. As soon as this fact was fully appreciated, our leaders immediately offered to interview listed men for the purpose of ascertaining their employment status at the time. It was only through the adoption of this procedure that we were able to procure the workers as needed. It also eliminated the needless preparation of USFS 325 forms in cases where the registrants were employed, but had not notified the MRS to that effect.

During the period August, 1936 to July, 1937, the desired labor was obtained through the district W.P.A. offices. With few exceptions, good cooperation was evidenced at all times, but the service was not as prompt as under M.R.S.

In Pennsylvania, one of the district W.P.A. managers was reluctant to furnish the desired number of workers because the men on our project were paid higher wages than those paid workers on local projects. The matter was reported to the state office of the W.P.A., but was never satisfactorily adjusted. To offset this condition additional workers were employed in other sections of the state.

Since July, 1937, all the W.P.A. administrative activities have been centralized at the respective state headquarters, which necessitated the submission of all labor requisitions to these offices. This procedure materially interfered with the prompt assignment of workers, and seriously handicapped the control work in some sections of the Northeast. Repeated protests to the state W.P.A. officials did not accomplish the desired results.

The 90-10 ratio required between relief and non-relief workers up to April 15, 1937 was consistently maintained in each state, except during the period June 1 to August 28, 1936 when 406 workers were exempted from the required ratio in Maine, New Hampshire and Vermont. Since April 16, 1937, W.P.A. regulations have required that at least 95% of all employees be taken from relief rolls. This ratio has been maintained in all states, except Connecticut and New Jersey. As less than 20 W.P.A. laborers were employed on the projects in each of these states, exemptions from the required 95-5 ratio were permitted in accordance with Sections 2 and 6 of W.P.A. Administrative Order No. 54.

Personnel

Funds for blister rust control work under the W.P.A. Program were first made available July 25, 1935, and labor was being employed by July 29. During the first half of August, 1935, a total of 1,800 persons were on the W.P.A. payrolls. For the next two and a half months, the W.P.A. personnel averaged 2,955 employees. An average of 363 W.P.A. workers were employed chiefly on pre-eradication survey work during November and December, 1935. The average number of W.P.A. employees during 1936 and 1937 were as follows:

Period	Major Field Project	Average No. WPA Employees
January 1 to April 30, 1936	Pre-eradication surveys	418
May 1 to September 30, 1936	Ribes eradication	4,146
October 1 to December 31, 1936	Pre-eradication surveys	391
January 1 to April 30, 1937	Pre-eradication surveys	345
May 1 to September 30, 1937	Ribes eradication	819
October 1 to December 31, 1937	Pre-eradication surveys	678

A peak number of 4,457 workers were employed from July 1-15, 1936, and the average number of employees was 1,383 per semi-monthly period for the entire program to December 31, 1937.

Table 1. - Employment on Blister Rust Control Under W.P.A. Program
Calendar Year 1937

State	Security Wage Workers						Appointees *			All Employees		
	Relief			Non-Relief								
	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.
Ala.	138,017	1078.3	89.9	-	-	-	8,160	42.5	3.5	146,177	1120.8	93.4
Ariz.	132,667	1097.4	91.5	31	0.3	-	9,840	51.3	4.3	142,538	1149.0	95.8
Cal.	118,144	842.0	70.2	-	-	-	4,320	22.5	1.9	120,464	864.5	72.1
Col.	100,159	782.5	65.2	-	-	-	9,600	50.0	4.2	109,759	832.5	69.4
Conn.	5,475	44.5	3.7	-	-	-	480	2.5	0.2	5,955	47.0	3.9
Del.	15,775	108.3	9.0	-	-	-	1,920	10.0	0.8	15,695	118.3	9.8
Fla.	231,090	1805.4	150.5	1138	8.9	0.7	18,120	94.4	7.9	250,548	1908.7	159.2
Ill.	3,142	25.7	2.1	-	-	-	1,200	6.3	0.5	4,342	32.0	2.6
Ind.	69,031	581.7	58.8	173	1.0	0.1	8,240	32.5	2.7	75,444	715.8	59.0
Iowa	-	-	-	-	-	-	-	-	-	-	-	-
Totals	809,500	6405.8	538.9	1542	10.8	0.8	59,880	312.0	26.0	870,722	6738.6	565.1
Mean	-	-	-	-	-	-	4,095	24.4	2.0	4,095	24.4	2.0
Totals	809,500	6405.8	538.9	1542	10.8	0.8	59,880	312.0	26.0	870,722	6738.6	565.1

July 29, 1935 to December 31, 1937

State	Security Wage Workers						Appointees *			All Employees		
	Relief			Non-Relief								
	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.	Man Hours	Man Mos.	Man Yrs.
Ala.	728,909	6653.2	471.1	65,891	435.3	36.3	43,480	226.5	16.9	826,288	6315.0	526.4
Ariz.	353,527	5173.0	431.1	116,540	915.7	76.3	45,322	236.0	19.7	815,409	6324.7	527.1
Cal.	496,814	3781.4	315.1	40,175	312.1	26.0	27,091	141.1	11.8	566,080	4234.6	352.9
Col.	394,885	3072.2	256.0	8,821	68.4	5.7	35,962	187.3	15.6	439,668	3327.9	277.3
Conn.	5,081	43.9	3.6	3,639	28.6	2.4	1,440	7.5	0.6	60,160	470.0	39.0
Del.	117,638	876.7	73.0	1,831	14.1	1.2	5,454	28.3	2.4	119,903	918.1	76.2
Fla.	1,215,036	9,477.0	789.3	38,600	300.4	25.0	31,211	163.0	13.5	1,387,877	10,200.4	850.8
Ill.	10,670	86.6	7.2	-	-	-	2,608	13.0	1.1	13,278	99.6	8.3
Ind.	317,539	4,377.7	364.8	21,691	176.6	14.9	37,324	194.4	16.2	676,554	4,750.9	395.1
Iowa	-	-	-	-	-	-	-	-	-	-	-	-
Totals	1,801,349	13,930.7	1,144.3	287,138	2,253.4	187.8	279,778	1,457.1	121.5	4,755,315	36,641.2	3,055.1
Mean	-	-	-	-	-	-	4,095	24.4	2.0	4,095	24.4	2.0
Totals	1,801,349	13,930.7	1,144.3	287,138	2,253.4	187.8	279,778	1,457.1	121.5	4,755,315	36,641.2	3,055.1

*Includes time paid supervisors for all accumulated annual leave taken after completion of their field services.

Table 2 - Peak Employment and Man Year Cost of Blister Rust Control
Under W.P.A. Program in Northeastern States

Calendar Year 1937

State	Peak Employment		Man Year Cost		Man Month Cost		
	No. Men	Period	Over All (1)	Net (2)	Over All	Net	Operating Cost
Maine	200	6/16-6/30/37	\$779.42	\$810.64	\$65.02	\$67.53	\$5.95
N.H.	193	6/16-6/30/37	755.25	780.74	62.98	65.91	1.87
Vt.	120	8/16-8/31/37	716.10	735.51	69.65	61.24	3.19
Mass.	97	11/1-11/15/37	953.89	1,016.54	79.52	84.60	3.85
R.I.	11	7/1-7/15/37	881.73	929.39	73.17	77.23	6.20
Conn.	14	11/16-11/30/37	877.90	904.72	74.21	81.06	7.63
N.Y.	359	6/16-6/30/37	859.44	908.77	71.59	75.32	1.73
N.J.	8	7/16-7/31/37	871.52	1,079.02	71.03	88.17	.04
Penna.	93	7/16-7/31/37	753.35	794.34	63.14	66.15	3.09
Sub-							
Totals			811.81	851.07	67.66	70.92	2.84
Admin.			2,807.15		230.09		
Totals			\$818.84	\$851.47	\$68.25	\$71.79	

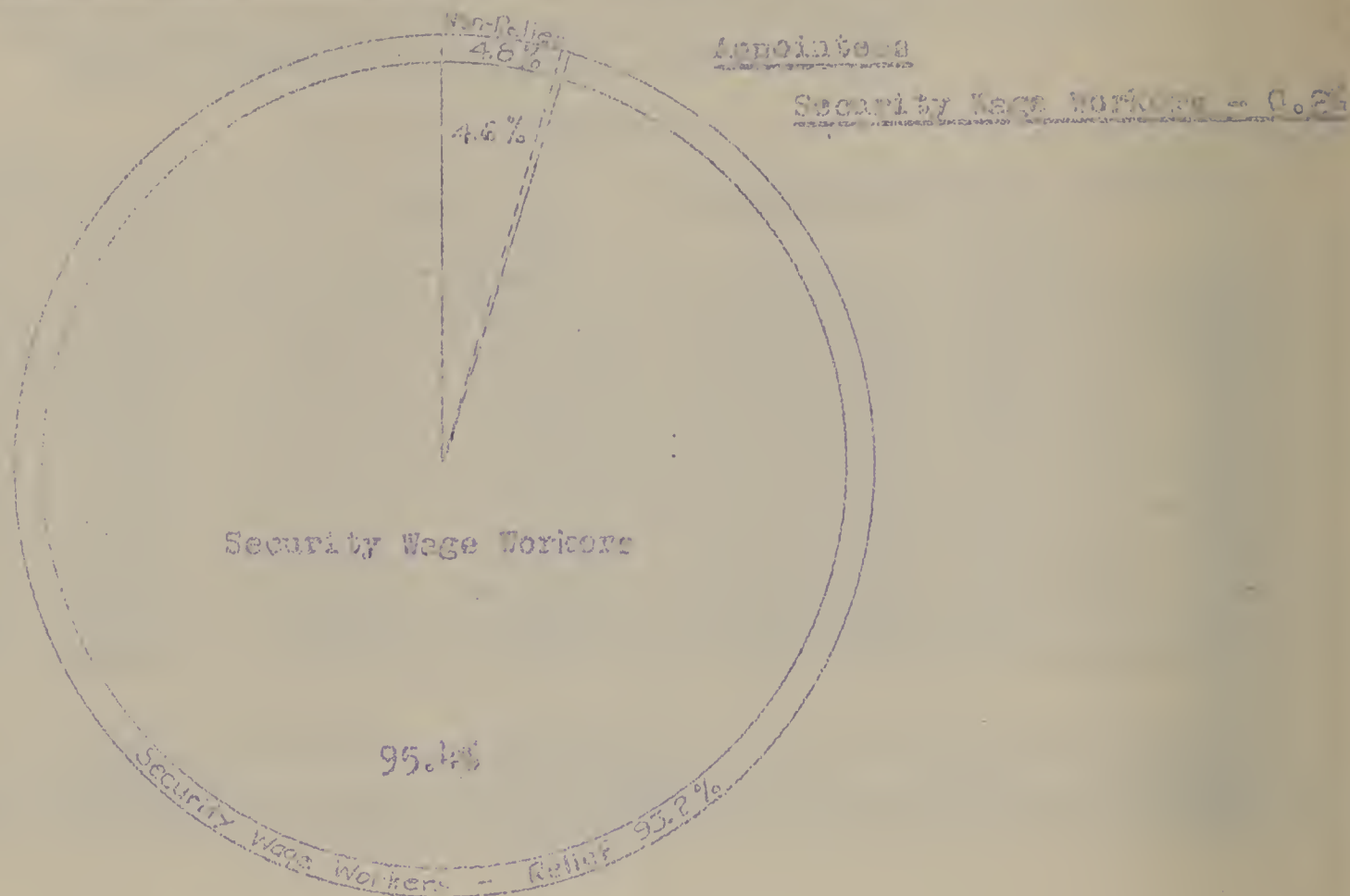
July 29, 1935 to December 31, 1937

State	Peak Employment		Man Year Cost		Man Month Cost		
	No. Men	Period	Over All (1)	Net (2)	Over All	Net	Operating Cost
Maine	741	8/16-8/31/36	\$782.46	\$811.61	\$65.21	\$67.64	\$4.75
N.H.	905	6/1-6/15/36	749.23	773.32	62.44	64.86	3.46
Vt.	632	8/16-8/31/36	689.60	713.45	57.47	59.45	3.66
Mass.	327	6/1-6/15/36	942.27	993.44	78.52	83.20	4.65
R.I.	64	6/1-6/15/36	762.54	774.39	63.60	64.63	1.15
Conn.	115	9/1-9/15/35	858.67	865.80	69.97	72.20	3.37
N.Y.	1,184	8/1-6/15/36	840.87	877.19	70.07	73.10	1.70
N.J.	14	8/16-8/31/35	878.40	1,012.60	73.20	84.19	3.14
Penna.	608	7/16-7/31/36	733.16	769.66	61.51	64.14	3.33
Sub-							
Totals			792.44	825.27	66.04	68.77	3.35
Admin.			2,807.15		230.09		
Totals			\$793.76	\$827.19	\$66.15	\$68.93	

(1) Based on total expenditures divided by number of security-wage and appointee man years.

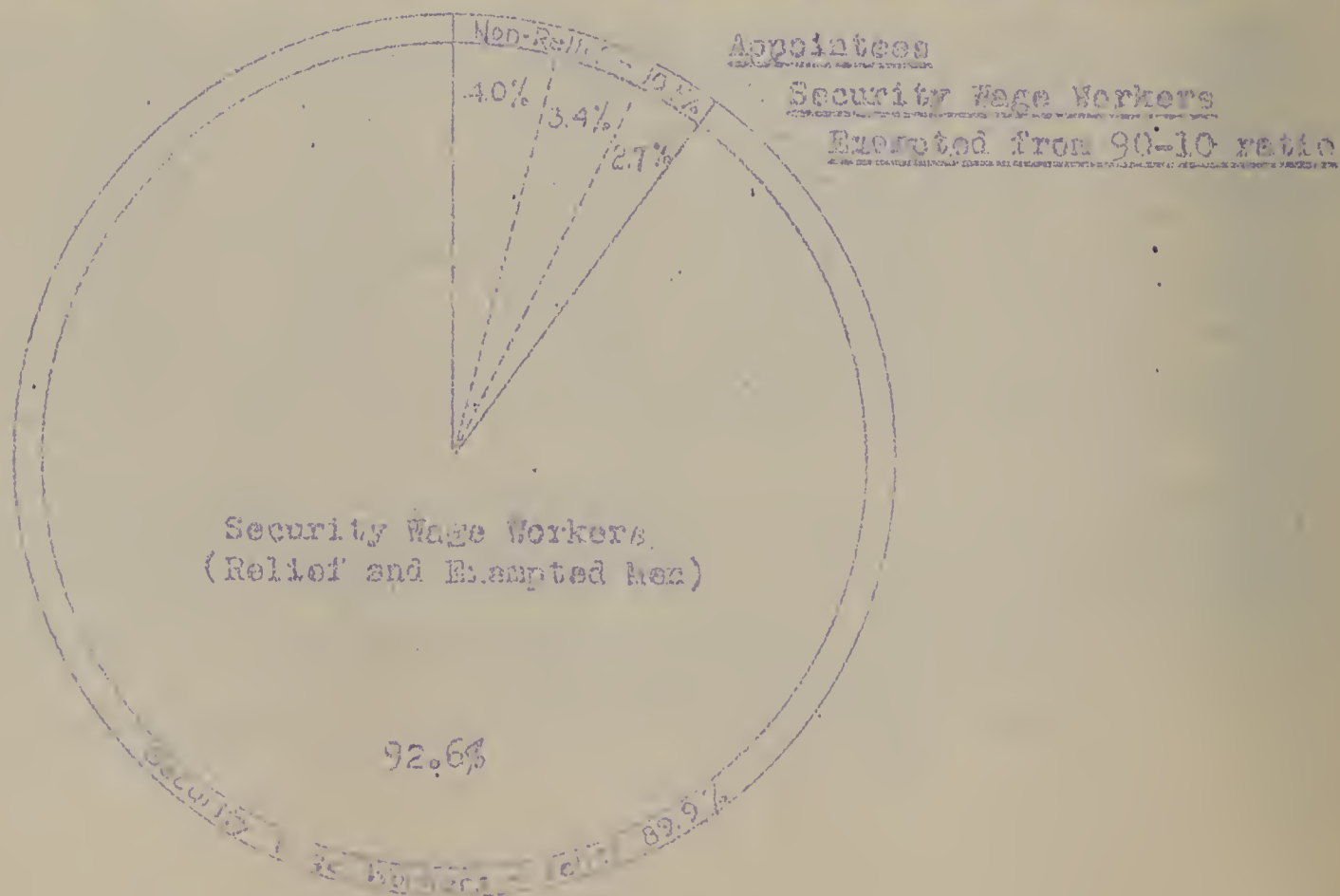
(2) Based on total expenditures divided by number of security-wage man years.

Personnel by Employment Classes on Blister Rust Control
Program in Northeastern States - July 29, 1935 - December 31, 1937



Total Man Months of Employment - 6,788.6

Personnel by Employment Classes on Blister Rust Control
Program in Northeastern States - July 29, 1935 - December 31, 1937, Inclusive



Total Man Months of Employment - 35,641.2

(Exempted from 90-10 ratio by (broad states))

Table 3. Man Months of Employment by Relief and Non-Relief Employees and The Status in Maintaining Required Ratio

Calendar Year 1937

State	Total Man Months Employment		Man Months Surplus or Deficit Over Required Ratio
	Relief	Non-Relief	
Maine	1,078.3	42.5	+25.7
N.H.	1,097.4	51.6	+16.3
Vt.	842.0	22.5	+29.2
Mass.	782.5	50.0	+ 0.4
R.I.	44.5	2.5	+ 0.6
Conn.	108.3	10.0	- 2.5
N.Y.	1,805.4	103.3	+10.1
N.J.	25.7	6.5	- 4.9
Penna.	681.7	34.1	+ 8.1
Totals	6,465.8	322.8	+85.0

July 29, 1937 to December 31, 1937

State	Total Man Months Employment		Man Months Surplus or Deficit Over Required Ratio
	Relief	Non-Relief*	
Maine	5,653.2	653.3	-76.8
N.H.	5,173.0	1,146.7	-626.1
Vt.	3,751.4	449.3	-71.0
Mass.	3,072.2	253.6	+51.2
R.I.	433.9	38.1	+10.3
Conn.	875.7	40.3	+50.8
N.Y.	9,477.0	712.8	+253.0
N.J.	86.6	13.0	- 4.4
Penna.	4,377.7	365.5	+87.4
Totals	32,930.7	3,670.6	-525.6

*Does not include time paid supervisors for accumulative annual leave totalling 1,197 man days, or 39.9 man months, taken after completion of their field services.

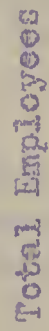
Excluding the 1020.9 man months worked by the 406 non-relief laborers exempted from the 90-10 ratio during the period June 1 to August 28, 1936, there actually has been a surplus of 695.3 man months of relief employment over the required ratio for the entire program.

Explanation of Deficits in Maine, New Hampshire, Vermont, and New Jersey

In Maine, 51 non-relief laborers, exempted from 90-10 ratio, were employed for 135.2 man months during the period June 1 to August 28, 1936. Similar exemptions were granted for 233 non-relief laborers in New Hampshire and 122 workers in Vermont during the same period. These non-relief workers were employed for 621.3 and 264.4 man months respectively. The deficit of 4.4 man months in New Jersey was accumulated during 1937 when exemption from the 95-5 ratio was permitted in accordance with W.P.A. Administrative Order No. 54.

U.S.A. PERSONNEL - BLISTER MUST CONTROL
NORTHEASTERN STATES

July 29, 1955 to December 31, 1957



Position

[illegible]

Times Tradition

NON-FUNCTIONAL

Appointments

And I don't
know any more

Ribes
Fraxinifolia

Fire and Control Tension setting

THE COLLEGE

[illegible]

Hours of Work and Wage Scales

At the beginning of the WPA program, the maximum hours of work per month permitted WPA laborers on blister rust control was 130. The working schedule was established at twenty $6\frac{1}{2}$ -hour days per month. This arrangement was continued until March 16, 1936, at which time the maximum number of hours per month was reduced to 128 and the working schedule changed to 16 eight-hour days per month.

After conducting the program for about two months, we were advised that the wage scales would have to be approved by the respective state administrators. As a result of personal conferences with these men, uniform state rates, based on the highest county rate in the district where the project was being operated, were approved for each state. In some states, considerable difficulty was experienced in securing approval of the uniform rates, but the objective was finally accomplished in each state of the region. About July 1936, it was necessary to again contact the state administrators in order to obtain their approval of rates based on prevailing wages. The continuance of uniform state rates was approved in all cases. In four states, Maine, Connecticut, New York and Massachusetts, the 128-hour per month basis was continued, but it was established as follows in the other states: New Hampshire, 125; Vermont, 138; Rhode Island, 123; and Pennsylvania, 106.

In New Hampshire, the administrator approved the continuance of uniform rates until October 30, 1935. By that time we had completed our eradication work for the season. During the fall and winter months, he required county rates for unskilled workers, but agreed to the continuance of a statewide rate for the skilled laborers on our mapping project which employed only skilled men. The uniform state rate for skilled labor was used throughout the program, but during May 1 - July 31, 1936, it was necessary to pay unskilled workers on the basis of county rates. These local rates were abandoned August 1, 1936 and state rates approved for all classes of employees.

In Massachusetts, the assistant WPA administrator held up final approval of uniform rates for several months due to his interpretation of the WPA regulations and their application. He was not convinced that our project had a physical continuity, even though the WPA office at Washington phoned him that the proposed wage scale would meet with their approval. However, he finally agreed to a uniform state rate.

The only other exception to the uniform state rates occurred November 15, 1936 in Pennsylvania where the state administrator required a reduction of the hours to 96 per month in a unit of four counties (Bradford, Wyoming, Centre and Susquehanna) situated in the northeastern part of the state, a considerable distance from the other contiguous counties in which the project was being conducted. As only this one new district was involved in these special rates, it did not complicate our office procedure to any appreciable extent.

During 1937, the State W.P.A. Administrators in New Hampshire and Connecticut revised the hours of work and the wage scale for our projects in these two states. The maximum number of hours per month was reduced from 128 to 120 in both instances.

In all districts the rates of pay to employees on blister rust control at least equalled the rates paid to workers on local projects; and in most instances, our rates were higher. In spite of this condition, no complaints were received at the Cambridge Office, except the one made by the district WPA official in Pennsylvania. The State Administrators also advised that very few criticisms had been received by their offices as to the differences in wage rates.

Table 4. - Approved WPA Wage Scales for Federal Blister Rust Control Work
In Northeastern States

Period	Maximum Hours Per Month	Wage Rates by Personnel Classes			
		Unskilled	Inter- mediate	Skilled & Technical	Professional
Maine					
7/28/35 - 3/15/36	130	\$52.00	-	\$75.00	-
3/16/36 - 7/31/36	128	52.00	-	75.00	-
8/1/36 - 12/31/37	128	52.48	60.16	75.52	-
New Hampshire					
8/1/35 - 10/31/35	130	52.00	-	75.00	-
11/1/35 - 7/31/36	128	40.00-52.00*	-	75.00	-
8/1/36 - 12/31/36	125	50.00	-	75.00	-
1/1/37 - 12/31/37	120	48.00	-	63.60	76.80**
Vermont					
8/2/35 - 3/15/36	130	44.00	-	63.00	-
3/16/36 - 7/31/36	128	44.00	-	63.00	-
8/1/36 - 8/31/36	128	44.80	-	64.00	-
9/1/36 - 10/8/37	138	48.30	-	69.00	-
10/9/37 - 12/31/37	138	48.30	54.40 (136 Hrs.)	69.00	-
Massachusetts					
8/1/35 - 3/31/36	130	55.00	65.00	85.00	-
4/1/36 - 5/30/36	130	60.50	71.50	93.50	-
6/1/36 - 12/31/37	128	60.50	71.50	93.50	103.40***
Rhode Island					
8/9/35 - 3/15/36	130	55.00	-	85.00	-
3/16/36 - 7/31/36	128	55.00	-	85.00	-
8/1/36 - 8/4/37	123	55.35	-	85.48	-
8/4/37 - 12/31/37	123	55.35	65.19	85.48	-
Connecticut					
8/1/35 - 3/15/36	130	55.00	-	85.00	-
3/16/36 - 7/31/36	128	55.00	-	85.00	-
8/1/36 - 8/31/37	128	55.04	-	85.76	-
9/1/37 - 11/30/37	128	55.04	65.28	85.76	-
12/1/37 - 12/31/37	120	54.00	64.80	85.20	-
New York					
8/15/35 - 10/15/35	130	55.00	-	85.00	-
10/16/35 - 3/15/36	130	60.50	-	93.50	-
3/16/36 - 7/15/36	128	60.50	-	93.50	-
7/16/36 - 12/31/37	128	60.16	70.40	93.44	-

*County rates used only during period May - July 31, 1936.

**Used in New Hampshire only during the period Jan. 1 - July 15, 1937.

***Used at Regional Office during period June 8, 1936 - July 15, 1937.

Period	Maximum Hours Per Month		Wage Rates by Personnel Classes		
			Unskilled	Inter- mediate	Professional Skilled & Technical
8/1/35-10/30/35	130	<u>New Jersey</u>	\$55.00	-	\$85.00
5/16/36-7/31/36	128		60.50	-	85.00
8/1/36-9/30/36	121		60.50	-	84.70
5/16/37-12/31/37	128		60.50 (121Hrs.)	-	84.48 (128 Hrs.)
		<u>Pennsylvania</u>			
8/16/35-11/15/35	130		44.00	-	63.00
11/16/35-1/31/36	130		48.40	-	69.30
2/1/36-3/15/36	130		52.80	-	77.00
3/16/36-7/31/36	128		52.80	60.50	77.00
8/1/36-12/31/37	105		52.80	60.50	70.00
11/15/36-12/31/37	96*		48.40*	55.00*	63.00

*Only in Counties of Bradford, Wyoming, Centre and Susquehanna.

Secretary-stenographer at Harrisburg Office - \$85. per month -
maximum 120 hours per month.

Making Up of Lost Time By W.P.A. Labor

During the first few months of the program, considerable confusion existed as to whether or not it was necessary to make up credited time that had been lost due to inclement weather. Effective January 11, 1936, six states went on record as not requiring such lost time to be made up, but three states (New Hampshire, Massachusetts, and Rhode Island) continued to require the making up of such lost time. A W.P.A. regulation issued March 11, 1936 made it compulsory to make up credited lost time in all states. This procedure greatly complicated our record work, as it was necessary to determine for each payroll the amount of credited time and the amount of make up time. This condition continued until June 16, 1936 when instructions were issued that the W.P.A. labor would only be paid for time actually worked. In accordance with W.P.A. Administrative Order No. 56, dated May 18, 1937 employees have since that time been permitted to make up time lost due to weather conditions, sickness or injury, and temporary interruptions in the project due to circumstances beyond their control.

Transportation

Each district leader has been provided with a Government car for use in connection with his supervisory activities. Most of these automobiles are of the coach model type and were purchased prior to the W.P.A. Program. However, 13 sedan delivery trucks were purchased from W.P.A. money during the fall of 1935 and assigned to some of the district leaders whose cars were no longer serviceable for long trips. Instead of turning in their old automobiles, the cars were assigned to some of the W.P.A. supervisors during 1936 and have been used for transporting W.P.A. crews since that time. No Government trucks have been purchased for transporting W.P.A. laborers, because of the seasonal nature of our project. However, during December, 1937, arrangements were made to obtain 16 half-ton Dodge trucks, with pick-up bodies, from the Bureau of Entomology and Plant Quarantine Office at Greenfield, Massachusetts. These trucks were available for transfer due to the curtailment of

the gypsy and brown-tail moth control project under the W.P.A. Program.

All W.P.A. workers on our project travel to and from work on their own time. Instructions have been issued to the supervisory force to provide transportation where the daily cost to the worker exceeded car fare, normally 20 cents per day. A survey made in August, 1936 showed that 42 percent of the W.P.A. personnel employed at that time rode to and from work at their own expense, 38 percent traveled in cars provided at Government expense, 19 percent used automobiles furnished by towns and counties, while only 1 percent walked. The entire cost to the Government for transporting security wage workers up to December 31, 1937 amounted to \$39,537.00. Of this total, only \$7,676.23 was expended during the calendar year 1937.

Whenever transportation was necessary at Government expense, one of the following procedures was authorized:

1. Personally-owned cars at rate of 4 cents per mile for security-wage workers, and 5 cents per mile for appointees.
2. Personally-owned cars on owner-operator basis. This procedure proved very satisfactory, but was limited to cars owned and operated by relief security wage workers. Under this procedure, the owner was paid not only for his personal services on the work, but also for the use of his car.
3. Trucks hired on a contractual basis, where the total payments under one agreement did not exceed \$300.00. Only a few contracts of this type were made.

Safety Measures

Copies of all W.P.A. instructions concerning safety regulations have been furnished the supervisory personnel in the Northeastern States. Considerable confusion existed as to the application of the regulations and the inspection of the automobiles by W.P.A. officials. Only a few inspections have been made. Red flags and flares were provided in November, 1936 for all cars transporting W.P.A. workers on our project. Experienced drivers have been selected to operate the Government cars assigned to project, and all of these drivers have been furnished with Government operators' licenses.

Injuries and Compensation to W.P.A. Workers

During the period July 29, 1935 to December 31, 1937, a total of 9,096 workers have been employed for 4,755,315 man hours on the W.P.A. blister rust control activities in the Northeastern States. In spite of the large force of men employed, only 417 alleged injuries were reported up to December 31, 1937. The following summary shows the personnel employed and a classification of the alleged injuries sustained during the entire program.

Table 5 - Personnel Employed and Classification of Alleged Injuries Sustained on W.P.A. Blister Rust Control Project in Northeastern States

State	Total No. Men Employed	Total Man Hours Employment	No. Alleged Injuries, By Classes										Total	
			Poison Ivy		Infections		Blood Poisoning		Fractures & Bruises		Sprains		Organic	
			1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937	1937	1935 to 1937
Maine	1,523	826,238	4	13	2	7	1	1	1	1	7	1	5	3
N.H.	1,745	815,409	-	15	1	6	-	-	-	-	4	28	1	9
Vt.	1,411	666,080	10	35	1	26	1	2	1	3	2	31	6	25
Mass.	668	439,668	6	21	3	6	-	-	1	2	3	16	3	13
R.I.	110	60,160	-	-	-	-	-	-	-	-	1	2	-	-
Conn.	232	119,903	-	2	-	1	-	1	-	-	-	-	-	1
N.Y.	2,255	1,357,877	1	36	4	11	-	-	-	1	2	25	8	22
N.J.	31	13,376	1	1	-	-	-	-	-	-	-	-	1	1
Penn.	1,121	576,564	5	17	-	4	-	-	2	2	12	3	9	10
Totals	9,096	4,756,315	27	140	11	61	1	4	1	9	15	121	22	82
Percentage of Total Injuries			36.0	33.6	14.7	14.6	1.3	1.0	1.3	2.1	17.3	29.0	29.4	19.7

Only one death occurred and this was from meningitis which resulted from a twig being forced into the ear. Two employees are still disabled as a result of injuries during the first year of the program. These two men have been treated at Government hospitals, but according to latest reports received from the Compensation Commission, final disposition has not been made in either case. One other employee who was injured in October, 1937 is now receiving treatment at a Government hospital near New York City.

Over one third of the total injuries were due to poisoning, chiefly from poison ivy. Twenty nine percent of the cases were sprains and bruises, principally to feet, legs and the back. Only one of the sprains was of a serious nature. Of the 82 organic injuries, 60 represented injuries to eyes, but there was no case where the sight was lost. Nine cases of fracture were reported, including one instance where an employee's leg was broken as a result of an automobile accident. This was the only automobile accident involving injuries to W.P.A. employees reported for the duration of the program. A total of 61 cases of infection occurred, due chiefly to thorns being forced into various parts of the body, mostly the hands and fingers; but in only one instance was the consequence serious.

Table 6. - Number of Accidents Per 100 W.P.A. Employees and Compensation Payments Made To Such Employees Injured on Blister Rust Control Work (July 29, 1935 to December 31, 1937)

State	Total No. Employees	Total No. Accidents	No. Accidents Per 100 Employees	No. Men Paid Compensation	Total Amount Paid	Average Amount Paid Per Case
Maine	1,523	31	2.0	10	\$51.66	\$5.17
N.H.	1,745	59	3.5	9	56.68	6.50
Vt.	1,411	120	8.5	24	481.83	20.06
Mass.	668	59	8.8	7	198.17	28.02
R.I.	110	3	2.7	1	295.00	295.00
Conn.	232	5	2.2	1	6.67	6.67
N.Y.	2,255	95	4.2	19	611.84	52.20
N.J.	31	2	6.5	0	0	0
Penn.	1,121	44	3.9	4	416.00	104.00
Totals	9,096	417	4.6	75	\$1,224.35	\$16.32

No report has been received from the Compensation Commission as to the cost of hospitalization of the injured workers.

Activities of the Regional Office (Especially as related to the WPA Program)

Duties

Prior to the advent of the emergency programs, the personnel of the Regional Office was limited to the senior pathologist, an assistant and a secretary-stenographer. The activities were confined chiefly to general supervision of blister rust control in the Northeastern States. The office work consisted of the preparation of budgets and plans of work, summarization and analysis of field data and accomplishments, and the preparation of weekly and monthly personnel and progress reports. In addition, annual reports were prepared summarizing the results accomplished under each project in each of the States of the Northeastern Region. Property records were also kept at the Regional Office. The federal personnel in the Northeastern States consisted merely of a state leader in each of the nine states and a total of 29 district leaders. The payrolls, expense accounts and 1934 forms for these men were handled at the Washington Office.

During the FWA program several hundred laborers were employed on federal funds in addition to the appointed men. The time sheets for the laborers were sent to the Washington Office where the payrolls were prepared and submitted for payment. The same applies to expense accounts and 1934 forms. However, under the WPA program, which began July 29, 1935, practically all office work in connection with this program was assigned to the Regional Office. The office work consisted of the following items:

Preparation of budgets, plans, contracts, and schedules of work; preparation of payrolls for a maximum of 4,457 men; auditing of expense accounts for a maximum of 116 appointed men and a maximum of 75 laborers operating personally-owned machines on a four cent per mile basis; auditing all 1934 vouchers for contractual items, purchase of supplies and equipment for the entire region or arranging for such purchases through the procurement official; administrative record work in connection with all compensation cases; issuance of instructions to field personnel; and reports (weekly personnel, semi-monthly personnel and financial, monthly progress report of field activities, monthly news item, and fiscal and calendar year reports).

Personnel

At the beginning of the WPA program considerable difficulty was experienced in getting a clerical force for the Regional Office, due to the fact that the employees were taken from relief rolls and the desired number could not readily be obtained by the local employment office. During the first half of August, 1935, it was possible to secure only three workers. This number was increased to 10 during the latter half of August and to 12 during the latter half of September. The force was continued on this basis from that time until April 30, 1936, and consisted of 4 clerks, 3 stenographers, 3 typists and 2 office boys. During the period May 1, 1936 to October 3, 1936, the office force was increased to 22 workers, consisting of 8 clerks, 10 typists, 2 stenographers and 2 office boys. This increase in force was made in order to expedite payment of salaries and expenses and because the field force had been increased to about 4,500 workers. The office force during the field season of

1936 was divided into two shifts, one from 8 a.m. to 5 p.m. and the other from 5 p.m. to 10.15 p.m. This arrangement was necessary due to the limited space available and to prevent the purchase of considerable extra equipment which would have been essential if only one shift had been employed. The double-shift arrangement was used only for about a week after the ending of each payroll period. During the remainder of the time the services of the workers were staggered and they functioned on a one-shift per day basis. Mr. Cheyne took charge of the night shift, while Mr. Stimson directed the work during the day. The senior pathologist and his secretary worked the usual hours from 9 a.m. to 4.30 p.m. Frequently, however, the senior pathologist found it necessary to work a part or all of both shifts. In fact, in order to accomplish the desired results, it was often necessary for all the four regular employees to work overtime during the rush season.

The W.P.A. force at the Regional Office was reduced to 10 employees on October 16, 1936 due to the seasonal curtailment in the field work. One typist resigned in February, 1937 to take private employment, and two additional clerks were released on April 30, 1937. Since that date, seven W.P.A. relief workers have been continuously employed. Five of these employees have been on the project since its inception in 1935, and the other two were assigned during the spring of 1936. As a result of the training and experience gained by these employees during the past three years, their services have gradually become more valuable.

A total of 32 security wage workers have been employed at the Cambridge Office during the period August 1, 1935, to December 31, 1937. Six of these persons resigned to accept private employment, one resigned to be married, five were discharged because of inefficiency, thirteen were released because of curtailment in the field work, and seven are still employed. A total of 10 of the 32 workers were promoted to higher ratings during their service at the office. No politics were evident in the selection of personnel, and promotions were based entirely on the efficiency record of those concerned.

Payroll Procedure

Up to December 31, 1937, a total of 4,293 WPA payrolls had been prepared at the Cambridge Office and transmitted to the Treasury Accounts Office for payment. Payrolls were prepared on a semi-monthly basis and usually two payrolls, one for relief and another for non-relief employees, covered the services of all WPA laborers employed under the direction of a district leader.

The time sheets for the WPA laborers were submitted by the district leaders semi-monthly direct to the Cambridge Office. The payrolls were prepared there from these time sheets, usually the first day they were received, and sent by messenger to the Treasury Accounts Office at Boston. During 1935 the checks were mailed to the Cambridge Office where they were grouped by districts and sent by registered special delivery mail to the district leaders for distribution to the field workers. This procedure was continued until June 30, 1936, except that beginning May 1 our messenger called for the checks at the Accounting Office in order to expedite delivery. During the first part of July, 1936, a new arrangement was initiated in the distribution of checks whereby each check was mailed by the Cambridge Office direct to the individual concerned, the envelopes being addressed in advance of receipt of the checks. This plan speeded up the delivery of checks by at least a day. A few checks were reported as lost, but the number was insignificant. The interval between the dates the payrolls were submitted to the Treasury Accounts Office and the dates the checks were received at our

Cambridge Office averaged 3.7 days for 4,293 payrolls - see following table. Checks are now sent direct to the employee by the Disbursing Office of the U. S. Treasury.

Table 7. - Tabulation Showing Time Involved from Date Voucher Transmitted To Treasury Accounts Office to Date Checks Were Received at This Office - Period July 29, 1935 to Dec. 31, 1937.

Days Involved	Number of Vouchers	Percent
1	551	12.8
2	657	15.3
3	931	21.7
4	857	20.0
5	541	12.6
6	384	9.0
7	225	5.2
8	102	2.4
9	25	.6
10	8	.2
11	3	.1
12	4	.1
13	2	.0+
14	1	.0+
15	"	"
16	"	"
17	"	"
18	"	"
19	"	"
20	2	.0
	4,293	100.0

Payroll Encumbrances

During the period July 29, 1935 to January 31, 1936, the Treasury Department required the establishment of an advance encumbrance for each payroll. This method entailed a large amount of clerical work. Fortunately, the system was changed February 1, 1936 to allow our office to set up an advance encumbrance covering the total estimated amount to be obligated by each official project for each payroll period. This procedure greatly simplified this phase of the work.

For several months difficulty was encountered in securing prompt cancellation of unobligated encumbrances. In order to make available for re-encumbrance any unobligated balances, it is necessary for this office to issue Form A-5A, notice of cancellation of encumbrance. In many instances, it required three or four months before final approval and release of these unobligated balances could be obtained from the Treasury Accounts Office. This condition complicated our record-keeping and made it difficult to determine the exact status of funds. However, early in 1937, this situation was remedied and prompt action has since been taken on our requests for cancellation of unobligated encumbrances.

Procurement Procedure

During the first few weeks of the WPA program, it was necessary to obtain all equipment and supplies on requisition through the Procurement Division of the Treasury Department. The length of time involved in this procedure was so great, it decidedly handicapped field activities. On August 29, 1935, authority was

granted to issue requisitions and purchase supplies under competition without reference to the Procurement Division where the cost involved did not exceed \$300. This procedure greatly facilitated delivery allowing the program to go forward with more speed and efficiency.

In making purchases of small supplies and equipment in the field we were handicapped until the latter part of February, 1936, because such items had to be obtained either through the Procurement Officer or secured through the Cambridge Office under the \$300. exemption. The Accounting Office was unable to permit the inclusion of such items in the monthly expense account on Form 1012, as had been the practice under the regular program. However, such action was later approved.

Payment of Accounts (Forms 1012 and 1034)

During 1937, excellent service was rendered in the auditing and payment of 1012 and 1034 vouchers. On the whole, the field personnel made fewer mistakes in the preparation of such accounts, which facilitated the auditing of the vouchers at the Cambridge Office. The Boston Accounting and Disbursing Offices of the Treasury Department are to be commended on the prompt services rendered. In many instances, the payees received their checks within a few days after the vouchers were forwarded to Boston for payment. This prompt service has been greatly appreciated by our field personnel as well as dealers rendering services to our Division.

Accomplishments in Blister Rust Control Under the W.P.A. Program in The Northeastern States

Ribes Eradication Work During 1937

Ribes eradication has been the major field activity performed on the blister rust control project under the W.P.A. Program. Such work was conducted in 207 townships in 62 counties of the Northeastern States during the period May 1 to November 15, 1937. The projects were started as early as possible in May in all of the states, and terminated on August 27th in Rhode Island; September 30th in Maine, New Hampshire, and Connecticut; October 8th in Vermont; October 15th in Massachusetts; and October 30th in Pennsylvania. In New York and New Jersey a small amount of Ribes eradication work was performed during the early part of November, 1937. A total of 311,470 acres, practically all on individually-owned lands, was cleared of 8,939,253 wild Ribes and 6,520 cultivated bushes as a result of 60,182 man days of work during the 1937 season.

Six-man crews, consisting of five unskilled laborers and a foreman were used on the 1937 W.P.A. Ribes eradication work. Practically all of the areas were systematically examined by crews in strip formation, as personnel problems and funds available did not permit the employment of scouts on the W.P.A. work. This procedure resulted in the destruction of numerous Ribes concentrations, but was a factor in restricting the amount of acreage worked.

Table 8. - Distribution of Work and W.P.A. Personnel
Employed on Ribes Eradication Work in Northeastern States - 1937

State	No. Counties in Which Work Performed	No. Towns Where Work Performed	No. Security Wage Workers		No. Supervisors
			Maximum	Average	
Maine	13	51	200	135	4
N.H.	9	36	197	141	3
Vt.	8	12	119	99	0
Mass.	7	25	89	78	0
R.I.	1	1	10	8	0
Conn.	1	1	11	9	0
N.Y.	14	51	334	221	17
N.J.	1	2	7	6	1
Penna.	8	28	90	82	0
Totals	82	207	1,067	779	25

The supervisors in Maine, New York, and New Jersey were furnished by the states, while the 3 men in New Hampshire were employed for only part of a month and paid from B.E. and P.Q. funds.

Table 9. - Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During 1937.
(Excludes nursery sanitation and cultivated black currant elimination)

State	Type of Erad.	Acreage		Ribes Pulled		Total Man Days	Local Coop.	State	W.P.A.	Total	Cost	Per Acre	Mon
		Total	Worked	Pine Protected	Wild								
Maine	Initial	27,691	10,540	1,300,691	578	5,811	696.71	2,283.38	18,322.86	21,302.95	.769	47.0	21
	Re-Erad.	30,296	11,627	583,346	322	5,288	431.20	1,387.45	17,213.04	19,031.69	.628	19.3	17
	Total	57,987	22,167	1,884,037	900	11,099	1,127.91	3,670.83	35,535.90	40,334.64	.696	32.6	11
N.H.	Initial	23,079	14,595	1,067,189	753	4,582	98.83	15.50	16,509.82	16,624.15	.720	46.2	20
	Re-Erad.	32,774	20,610	507,603	-	4,097	317.67	-	16,812.67	17,130.34	.523	15.5	15
	Total	55,853	35,205	1,574,792	753	8,679	416.50	15.50	33,322.49	33,754.49	.604	28.2	10
Vt.	Initial	19,527	3,515	741,538	359	4,814	1,650.37	22.50	13,955.60	15,628.47	.800	38.0	25
	Re-Erad.	10,568	3,734	107,903	133	2,232	836.13	-	7,330.40	8,216.53	.777	10.2	2
	Total	30,095	7,249	849,446	472	7,046	2,486.50	22.50	21,336.00	23,845.00	.792	28.2	2
Mass.	Initial	13,126	7,194	79,424	-	1,047	30.56	-	4,245.32	4,275.88	.326	6.1	09
	Re-Erad.	33,552	14,599	637,852	928	4,419	907.21	873.88	17,363.94	19,150.03	.571	19.0	13
	Total	46,678	21,793	717,276	928	5,466	937.77	873.88	21,609.26	23,425.91	.502	15.4	12
I.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	2,394	798	13,572	-	445	-	-	1,705.02	1,705.02	.712	5.7	19
	Total	2,394	798	13,572	-	445	-	-	1,705.02	1,705.02	.712	5.7	19
Conn.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	2,552	216	32,223	-	593	-	-	2,261.07	2,261.07	.961	13.7	25
	Total	2,552	216	32,223	-	593	-	-	2,261.07	2,261.07	.961	13.7	25
N.Y.	Initial	80,449	63,652	2,356,768	1,442	19,045	16.00	14,416.08	66,395.51	80,827.59	1.00	35.5	27
	Re-Erad.	13,735	9,156	137,915	156	1,665	14.40	2,143.36	5,440.13	7,597.89	.553	10.0	11
	Total	94,184	72,808	2,494,683	1,598	20,710	30.40	16,559.44	71,835.64	88,425.48	.939	31.8	22
N.J.	Initial	-	-	-	-	-	-	-	-	-	-	-	-
	Re-Erad.	1,417	442	16,956	15	392	-	-	1,631.36	1,631.36	1.15	12.0	28
	Total	1,417	442	16,956	15	392	-	-	1,631.36	1,631.36	1.15	12.0	28
Del.	Initial	20,510	3,005	856,268	1,854	5,751	-	336.70	24,362.33	24,699.03	1.20	41.7	28
	Re-Erad.	-	-	-	-	-	-	-	-	-	-	-	-
	Total	20,510	3,005	856,268	1,854	5,751	-	336.70	24,362.33	24,699.03	1.20	41.7	28
Totals	Initial	184,332	92,431	6,901,676	4,965	41,050	2,432.47	17,074.16	143,791.44	163,358.07	.886	37.1	22
	Re-Erad.	127,083	61,182	2,037,375	1,531	19,132	2,505.61	4,409.33	69,807.83	76,723.93	.604	16.0	16
	Total	311,470	153,613	8,939,051	6,496	60,182	4,938.08	21,483.49	213,599.27	240,082.00	.771	28.7	18

Basis of costs: The cost figures are based on the total cost of laborers and foremen employed in locating and pulling Ribes; transportation of crews; and miscellaneous expenses for trail paper picks, etc. The cost of any supervisors assigned to the WPA control work is not included in above expenditures for Ribes eradication.

Table 10. - Ribes Breeding Stock performed Under W.P.A. Program in Northern States during Period 1935 - 1937, inclusive.
(700 index nursery sanitation and black currant elimination)

By States

State	Type of Prod.	Acreage Worked	Ribes Pulled		Total Man Days	Cost			Per Acre	
			Wild	Cult		Local Coop.	State	W.P.A.	Coat	Ribes
Calif.	Initial	210,368	11,264,680	4,972	48,803	833.58	2,368.79	172,775.77	175,978.14	.837
	Re-Erad.	184,656	4,434,944	7,447	53,793	888.72	1,430.52	122,193.38	124,512.60	.674
	Total	395,024	15,699,624	12,419	82,686	1,722.30	3,799.31	294,969.15	300,490.74	.761
Idaho	Initial	190,829	7,769,216	5,485	41,612	521.93	149.65	142,368.53	142,839.91	.749
	Re-Erad.	202,566	4,301,409	1,275	36,848	1,429.32	123.83	126,668.47	128,221.62	.633
	Total	393,394	12,070,625	6,760	78,460	1,751.25	273.48	269,036.80	271,051.53	.689
Wash.	Initial	112,410	3,562,992	2,248	38,215	9,504.12	172.08	112,913.06	122,532.25	1.09
	Re-Erad.	53,825	925,342	627	14,472	2,694.13	131.26	45,347.38	48,172.77	.895
	Total	166,235	4,488,334	2,875	52,686	12,198.25	303.34	158,260.43	170,765.02	1.03
Wash.	Initial	89,480	943,419	13,941	12,331	2,513.93	432.28	47,812.17	50,558.38	.565
	Re-Erad.	125,223	2,080,010	4,836	23,525	5,453.74	2,391.82	92,855.00	100,680.56	.804
	Total	214,703	3,023,429	18,777	35,656	7,747.67	2,824.10	140,667.17	151,238.94	.704
N.H.	Initial	4,199	4,037	443	726	-	-	2,933.48	2,933.48	.699
	Re-Erad.	35,036	50,743	2,210	5,912	-	294.73	22,198.11	22,492.84	.642
	Total	39,235	54,835	2,553	6,628	-	294.73	25,131.59	25,426.32	.648
Conn.	Initial	16,227	37,908	2,138	2,287	-	22.94	8,944.53	8,967.47	.565
	Re-Erad.	33,366	442,802	906	9,563	176.00	42.59	36,847.91	37,066.50	1.11
	Total	49,593	530,708	3,044	11,855	176.00	65.53	45,792.44	46,033.97	.928
N.Y.	Initial	432,343	14,211,858	16,117	118,862	16.00	47,310.80	446,725.13	494,551.93	1.14
	Re-Erad.	83,951	2,005,938	2,559	18,694	14.40	6,883.14	71,464.80	78,362.34	.933
	Total	516,294	16,217,796	18,676	137,556	30.40	54,693.94	518,189.93	572,914.27	1.11
N.J.	Initial	3,625	21,127	299	951	-	298.10	5,862.30	4,160.40	1.16
	Re-Erad.	1,417	16,956	15	392	-	-	1,631.36	1,631.36	1.15
	Total	5,042	38,083	314	1,343	-	298.10	5,493.66	5,791.76	1.16
Penn.	Initial	116,144	8,398,423	9,558	50,782	-	336.70	186,752.13	187,088.83	1.61
	Re-Erad.	13,945	1,011,936	508	8,947	-	-	25,656.34	25,656.34	1.84
	Total	130,089	9,410,363	10,066	57,729	-	336.70	212,408.47	212,745.17	1.64
Totals	Initial	1,176,625	46,263,713	55,201	314,667	12,989.56	51,591.34	1,125,089.89	1,189,670.79	1.01
	Re-Erad.	733,934	15,270,084	20,383	149,941	10,636.31	11,297.89	544,862.73	566,796.53	.772
	Total	1,909,609	61,533,797	75,484	464,608	23,625.87	62,889.23	1,669,952.62	1,756,467.32	.920

Basis of costs: Same as listed for Table 9.

Table 11. - Ribes Eradication Work Performed Under W.F.A. Program in Northeastern States
During Period 1935-1937, Inclusive.

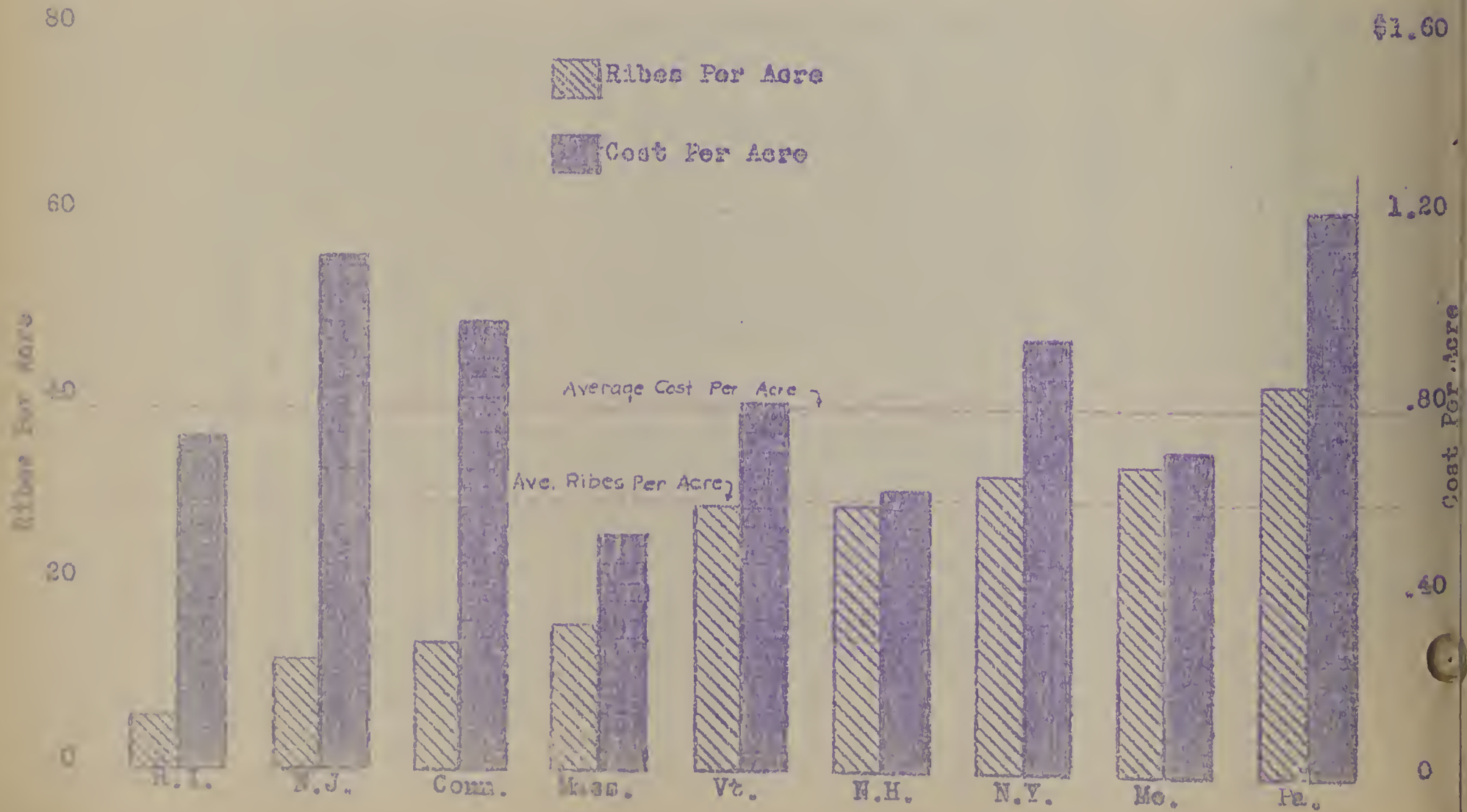
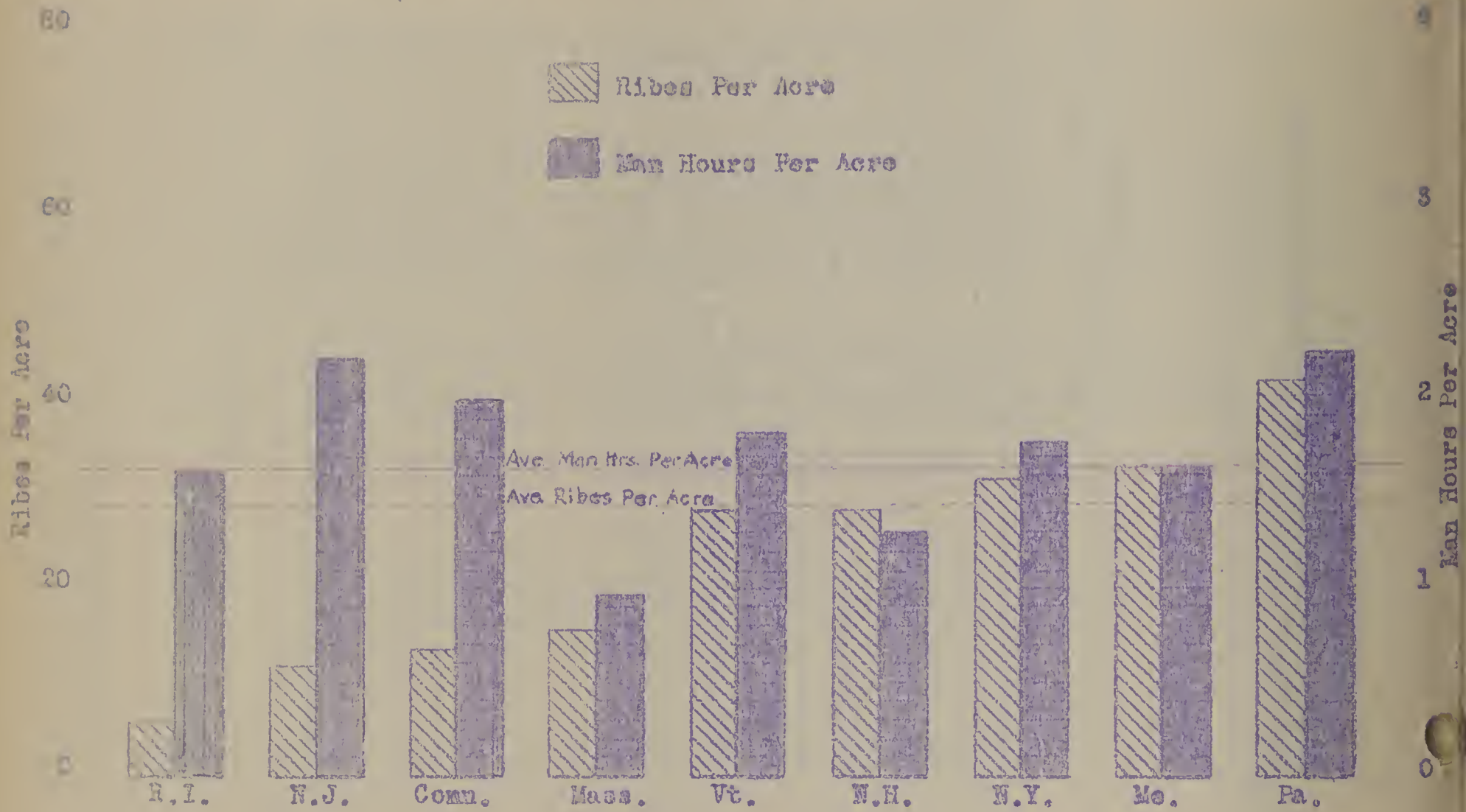
(Excludes nursery sanitation and cultivated black current elimination)

By Years

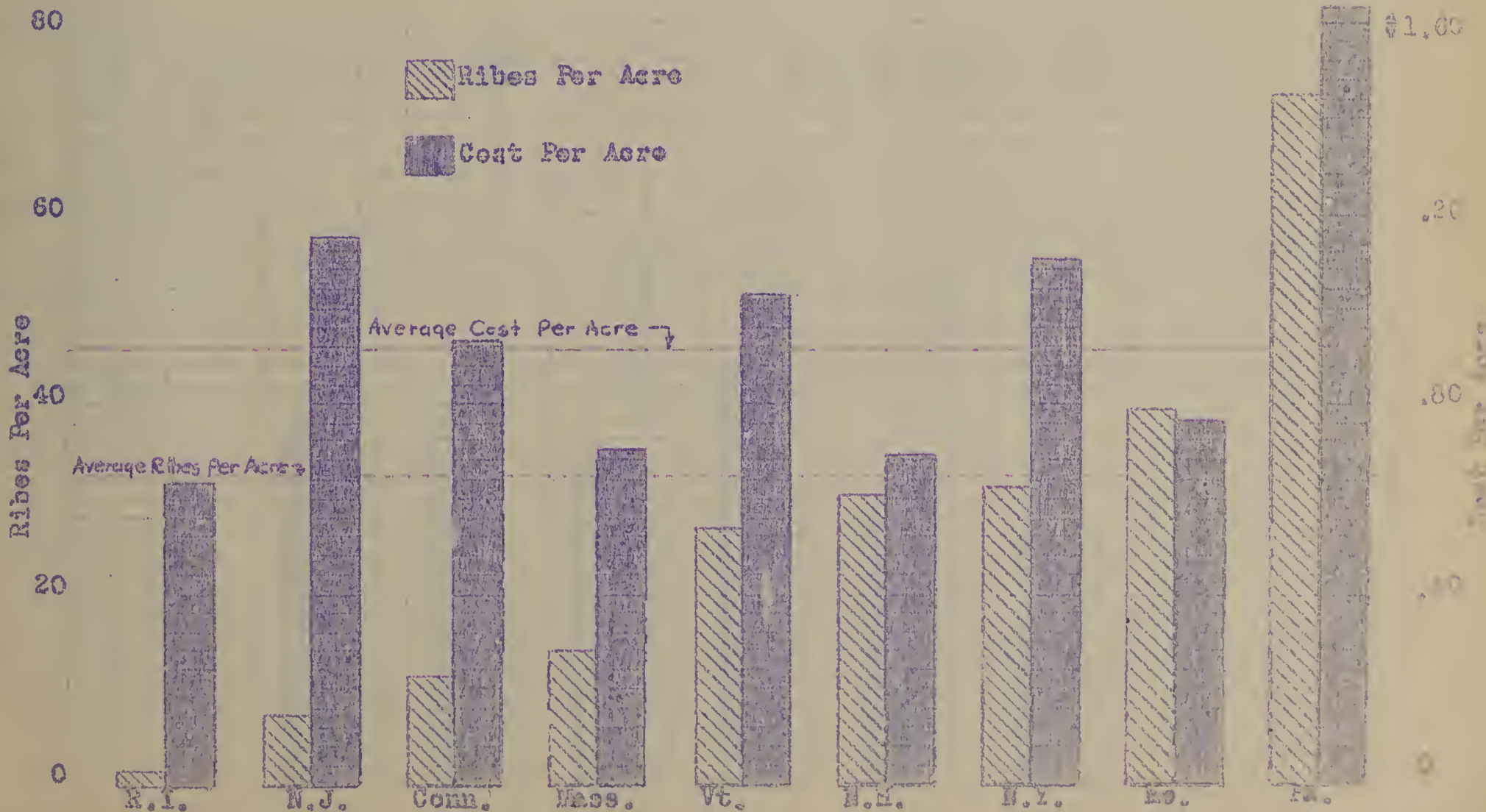
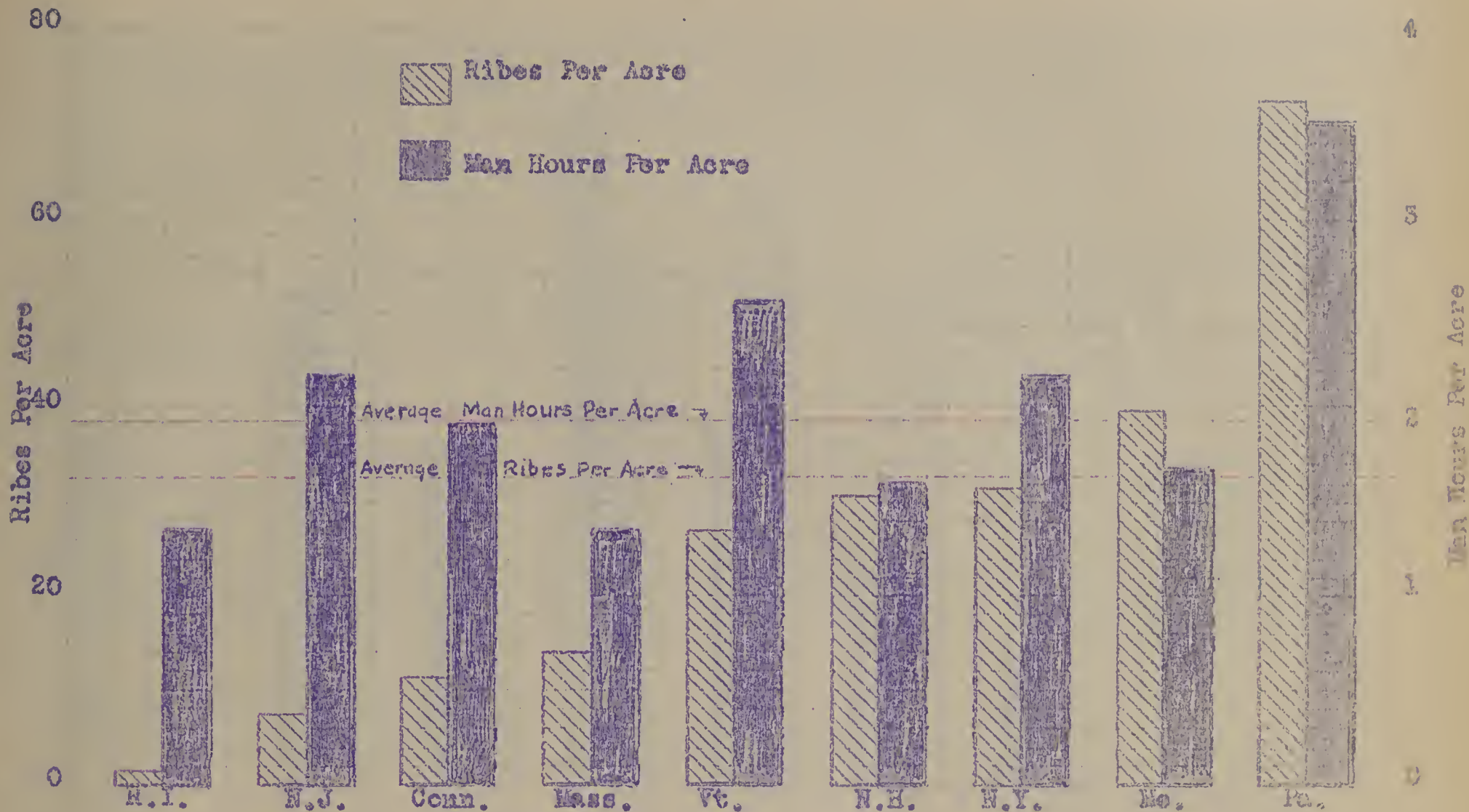
Year	Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Cost			Per Acre		
			Ribes	Cult.		Local Coop.	State	W.P.A.	Total	Cost	Ribes Days
1935	Initial	263,758	9,460,626	19,392	77,578	2,037.37	11,269.79	266,098.93	279,406.09	1.06	35.9
	Re-Erad.	156,885	2,545,100	3,592	35,513	2,193.55	2,834.91	127,308.20	132,386.66	.844	16.2
	Total	420,643	12,005,726	22,984	113,091	4,230.92	14,104.70	393,407.13	411,792.75	.979	28.6
1936	Initial	727,485	29,301,209	30,843	196,039	8,459.72	25,247.39	715,199.52	746,906.83	1.03	41.1
	Re-Erad.	450,011	10,687,609	15,137	95,291	5,936.15	4,003.29	347,746.90	357,686.34	.795	23.7
	Total	1,177,496	40,588,818	45,980	291,330	14,395.87	27,250.68	1,062,946.42	1,104,592.97	.939	34.6
1937	Initial	184,332	6,901,873	4,966	41,050	2,492.47	17,074.16	143,791.44	163,358.07	.886	37.4
	Re-Erad.	127,088	2,037,376	1,554	19,132	2,506.61	4,409.69	69,807.63	76,723.93	.604	16.0
	Total	311,420	8,939,253	6,520	60,182	4,999.08	21,483.85	213,599.07	240,082.00	.771	28.7
Totals	Initial	1,175,625	48,263,713	55,201	314,697	12,989.66	51,591.84	1,25,089.89	1,189,670.79	1.01	39.4
	Re-Erad.	733,934	15,270,084	20,283	149,941	10,636.31	11,297.89	544,862.73	566,796.93	.772	20.8
	Total	1,909,609	61,533,797	75,484	464,608	23,625.87	62,889.23	1,669,952.62	1,756,467.72	.920	32.2

Ratio of costs: - Same as listed for Table 9.

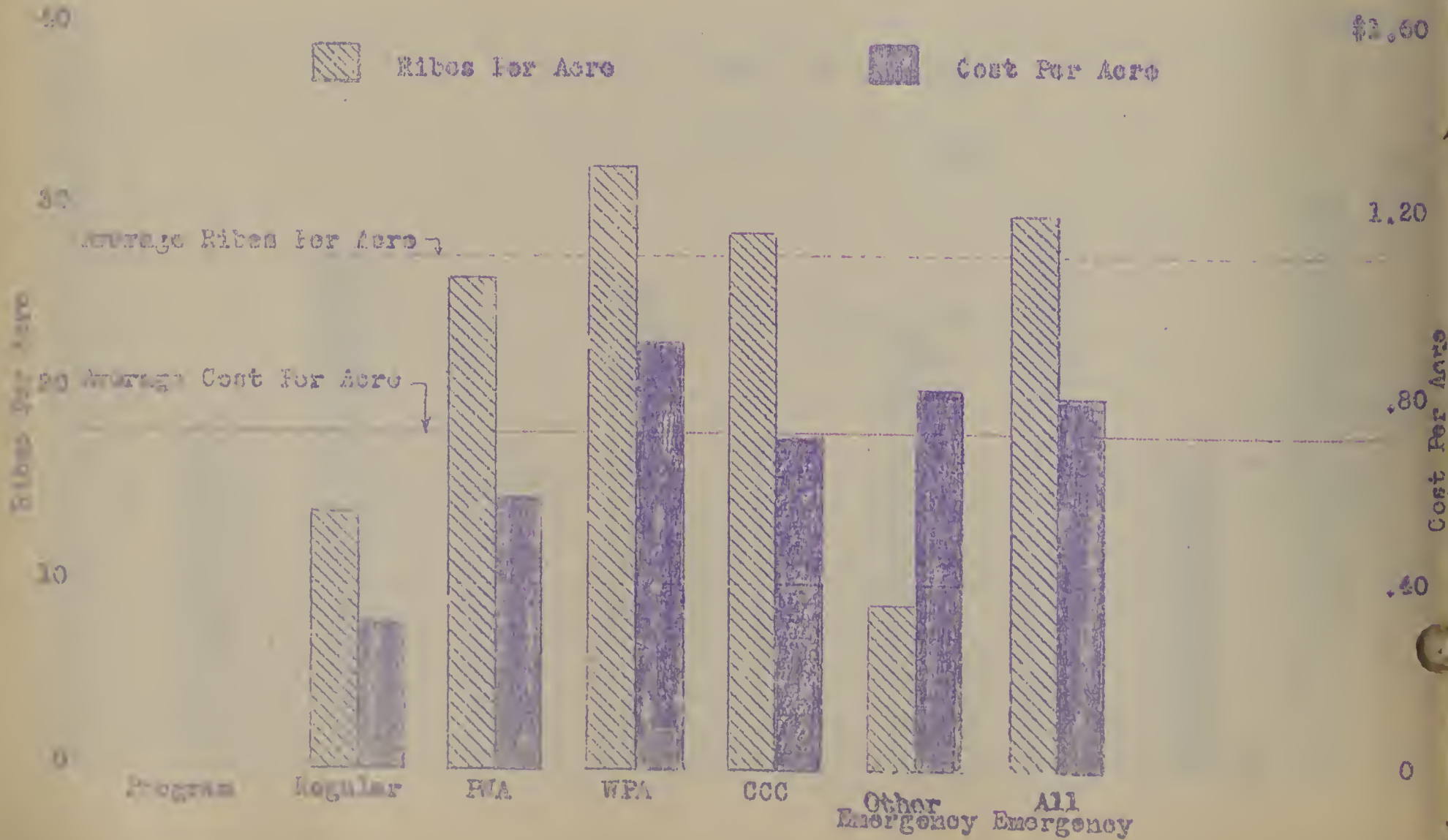
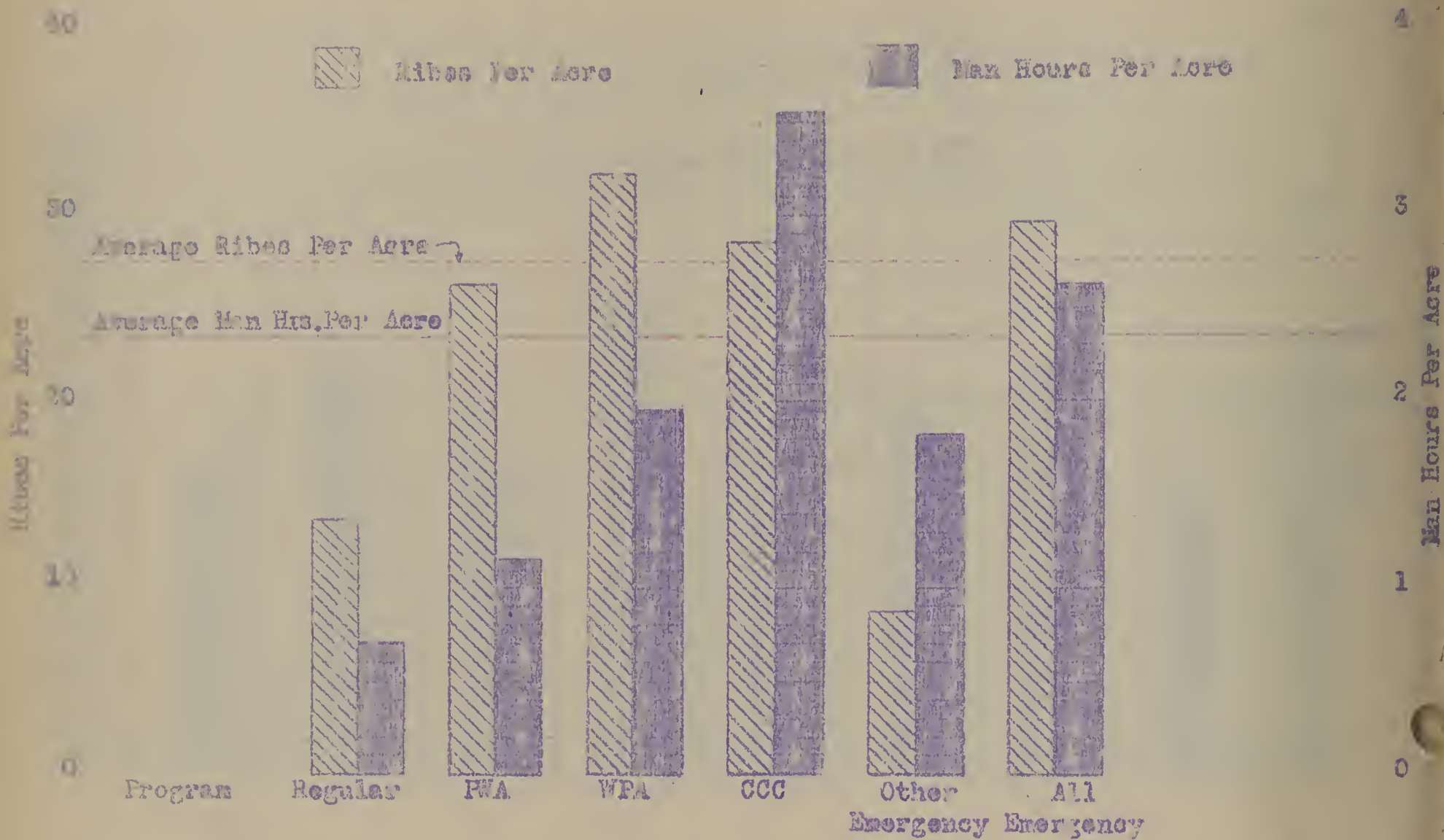
COMPARISON BY STATES OF PER ACRE VALUES FOR RIBES ERADICATION WORK
WPA PROGRAM - NORTHEASTERN STATES - 1967



COMPARISON BY STATES OF PER ACRE VALUES FOR RIBES ERADICATION WORK
WPA PROGRAM - NORTHEASTERN STATES - 1935-1937



COMPARISON BY PROGRAMS OF 1/4 ACRE VALUES FOR RIBES ERADICATION WORK
NORTHEASTERN STATES - 1933-1937, INCLUSIVE



Supervision of 1937 W.P.A. Ribes Eradication Work

Due to the limited amount of money available and the necessity of maintaining the 95-5 ratio as regards relief and non-relief employees, no W.P.A. supervisors were employed during the 1937 season. In most instances, the district blister rust control leaders were able to give adequate supervision to the W.P.A. project, but in several cases state men were assigned to assist in the supervisory activities. In New Hampshire, a small amount of B.E. and P.Q. money was used for such purposes.

Table 12. - Supervision of Ribes Eradication Work Performed Under W.P.A. Program in Northeastern States During 1937

State	No. Supervisors	Man Days Worked By Supervisor	Cost of Supervisors		
			State	B.E.&P.Q.	Total
Maine	4	71	588.50	-	588.50
N.H.	3	38	-	234.03	234.03
N.Y.	17	1,328	6,881.00	-	6,881.00
N.J.	1	75	508.55	-	508.55
Totals	25	1,510	7,975.85	234.03	8,209.88

Pine and Control Area Mapping

Up to the advent of the Emergency Programs in 1933, only a limited amount of pre-eradication survey work had been performed in the Northeastern States. During the early years of the control program, the acreage of white pine needing initial protection was so great and its location so evident and general, little mapping was necessary except to indicate the boundaries of the control areas. However, in recent years, the unprotected pine areas have been more isolated and smaller in size with larger proportionate protection zones. Consequently, it became necessary to do detailed mapping in order to locate the pine and to reduce the protection zone acreage to a minimum consistent with effective control. Local funds were available only for Ribes eradication work, while the state appropriations in most instances were so small that their use was confined to the yearly employment of foremen and scouts during the period May to September. The federal money was only sufficient to employ state and district leaders and the activities of these men was necessarily restricted to informational, service, and supervisory activities. The Emergency Programs provided for the first time a force of men to carry on mapping projects during the interval between the Ribes eradication seasons and excellent progress has been made since 1933 in mapping the blister rust control areas in the Northeastern States.

During the period January 1 to April 30 and from November 1 to December 31, 1937, pine and control area mapping was the major project under the W.P.A. Program in this Region. Such activities were conducted in all states, except New Jersey, but restricted to the period January 1 to April 30 in Rhode Island. The 1937 surveys resulted in 2,132,073 acres being mapped in detail, and the examination and elimination of an additional 2,366,562 acres due to lack of sufficient white pine to justify the cost of control measures. In addition, 1,241 miles of control area boundary lines were painted in the field. The detailed accomplishments in each state are shown in the following summary.

Table 13. - Summary of Pine and Control Area Mapping Under W.P.A. Program in Northeastern States During 1937.

State	No. Towns	Acreage		Miles Boundary Lines Painted	Total Man Days	Towns	State	Cost		
		Examined	But Not Mapped					D.P.C.	W.P.A.	Total
Pa.	109	303,463	1,141,370	79	6,402	-	155.80	17.00	28,383.60	28,597.00
N.J.	69	272,357	82,254	-	6,526	-	162.82	1.25	27,383.95	27,543.02
N.Y.	46	333,869	376,854	249	4,438	495.20	-	-	15,044.00	15,339.20
Del.	45	176,773	305,820	269	3,545	850.00	105.52	5.61	16,445.51	17,486.54
Md.	3	23,816	-	-	234	-	-	-	1,303.48	1,303.48
W.Va.	3	11,100	27,308	74	1,082	-	-	15.29	4,225.74	4,241.03
Ohio	95	895,593	89,593	20	6,314	-	345.98	25.11	23,787.30	29,711.37
Pa.	149	53,450	-	551	1,738	-	-	4.00	8,052.77	8,052.77
Totals	514	2,138,073	2,366,582	1241	30,257	1345.20	1465.10	69.76	129,159.55	132,026.41

*In Pennsylvania, several hundred thousand acres of non-pine land was eliminated but no definite record was kept.

basis of costs: Includes actual cost of personnel assigned to mapping work, transportation, and expenses for mapping equipment.

Table 14. - Summary of Pine and Control Area Mapping Under W.P.A. Program in Northeastern States, 1936-1937, Inclusive.

State	No. Towns	Acreage		Miles Boundary Lines Painted	Total Man Days	Towns	State	Cost		
		Examined	But Not Mapped					D.P.C.	W.P.A.	Total
Pa.	109	303,463	1,141,370	79	6,402	-	155.80	17.00	28,383.60	28,597.00
N.J.	69	272,357	82,254	-	6,526	-	162.82	1.25	27,383.95	27,543.02
N.Y.	46	333,869	376,854	249	4,438	495.20	-	-	15,044.00	15,339.20
Del.	45	176,773	305,820	269	3,545	850.00	105.52	5.61	16,445.51	17,486.54
Md.	3	23,816	-	-	234	-	-	-	1,303.48	1,303.48
W.Va.	3	11,100	27,308	74	1,082	-	-	15.29	4,225.74	4,241.03
Ohio	95	895,593	89,593	20	6,314	-	345.98	25.11	23,787.30	29,711.37
Pa.	149	53,450	-	551	1,738	-	-	4.00	8,052.77	8,052.77
Totals	514	2,138,073	2,366,582	1241	30,257	1345.20	1465.10	69.76	129,159.55	132,026.41

a large acreage of non-pine land was also eliminated in Pennsylvania, but no definite record was kept.

basis of costs: Same as listed for Table 13.

Nursery Sanitation

W.P.A. employees were used on nursery sanitation work performed in the environs of pine growing nurseries in the Northeastern States during the spring of 1937. This control work assured the continued production of disease-free white pines for use on reforestation projects. A total of 3,466 acres was examined; 1,666 wild and 49 cultivated bushes being removed as a result of 223 man days labor. The accomplishments, by states, are shown in Table 15.

Table 16. - Summary of Nursery Sanitation Work Under W.P.A. Program in Northeastern States During 1937.

State	Type of Erad.	No. Nurseries Worked	Acreage Worked	Ribes Felled		Total Man Days	Cost			Per Acre		
				Wild	Cult.		Indiv.	State	W.P.A.	Total	Cost	Ribes
N.H.	Re-Erad.	1	110	26	1	4	-	-	21.12	21.12	.192	0.5
Mass.	Re-Erad.	1	240	134	-	26	-	-	134.59	134.59	.561	0.6
	Initial	1	690	27	45	9	-	-	46.50	46.50	.079	0.04
R.I.	Re-Erad.	1	628	39	2	9	-	-	46.50	46.50	.074	0.08
	Total	2	1218	66	47	18	-	-	93.00	93.00	.076	0.08
Conn.	Re-Erad.	1*	-	-	-	3	-	-	12.24	12.24	-	-
N.Y.	Re-Erad.	1	1150	328	1	63	-	128.80	182.57	200.01	.227	3.4
Penna.	Re-Erad.	2	743	1102	-	109	189.00	-	477.31	666.31	.691	1.6
	Initial	1	590	27	45	9	-	-	46.50	46.50	.076	0.04
Totals	Re-Erad.	7	2376	1639	4	214	189.00	128.80	825.88	1241.58	1.57	4.8
	Total	8	3466	1666	49	223	189.00	128.80	870.33	1368.11	1.65	5.2

* Preliminary examination - eradication work done under State W.P.A. program.

Basis of Costs: Includes costs of laborers and foremen while engaged in locating and eradicating Ribes in nursery sanitation zones, and cost of over time-transportation.

Table 16. - Summary of Nursery Sanitation Work Performed Under W.P.A. Program in Northeastern States, 1935-1937, Inclusive.

State	Type of Erad.	Acreage Worked	Ribes Felled		Total Man Days	Cost			Per Acre	
			Wild	Cult.		Indiv.	State	W.P.A.	Total	Cost
N.H.	Re-Erad.	236	144	1	123	-	-	420.12	420.12	.147
Vt.	Re-Erad.	580	257	75	75	-	-	24.00	213.27	242.27
Mass.	Re-Erad.	727	1708	-	273	-	-	438.48	957.49	1595.97
	Initial	590	27	45	9	-	-	46.50	46.50	.079
R.I.	Re-Erad.	628	39	2	9	-	-	46.50	46.50	.074
	Total	1,218	66	47	18	-	-	93.00	93.00	.076
Conn.	Re-Erad.	932	63	8	73	-	-	171.59	171.59	.184
N.Y.	Re-Erad.	5,140	1,615	1	323	-	-	179.76	1225.32	1406.08
Penna.	Re-Erad.	1,131	2,934	26	177	282.00	-	716.35	927.83	1,358
	Initial	590	27	45	9	-	-	46.50	46.50	.079
Totals	Re-Erad.	9,224	6,798	115	1,053	282.00	642.24	3754.82	4643.86	1,504
	Total	9,814	6,825	160	1,062	282.00	642.24	3801.12	4695.36	1,478

Basis of costs: - Same as listed for Table 15.

Elimination of Ribes Nigrum (European Black Currant)

Ribes nigrum elimination work under the W.P.A. Program during 1937 was limited to Massachusetts where 7 W.P.A. employees were used for 144 man days making a re-survey in 13 townships in Plymouth County to ascertain whether the original black currant elimination work was effective and if any replanting of such bushes had occurred. This work was combined with a re-check for other cultivated Ribes in central area. Only 14 patches of Ribes nigrum containing 79 bushes were found. Of this number, 42 were removed before freezing weather prevented further eradication work. In the re-

about 100 other cultivated plants in the control areas, 497 bushes were found and 411 of these plants were immediately destroyed. A total of \$543.85 was expended on this survey work, all of which was paid from W.P.A. funds.

Table 17. - Summary of Ribes Nigrum Elimination Work Under W.P.A. Program in Northeastern States, 1935*-1937, Inclusive.
(All work in State of Massachusetts)

	1935	1937**	Total
No. townships in which work done.....	12	13	
No. properties inspected.....	49,468	12,363	61,849
No. patches located.....	468	14	482
No. Ribes located (Nigrum.....	2,392	79	2,471
(Other cult.	87	497	584
No. Ribes pulled (Nigrum.....	1,914	42	1,956
(Other cult.	0	412	412
Total man days.....	284	144	428
(Individuals.....	242,90	-	242,90
Cost (W.P.A.	1,712.75	543.85	2,256.60
(Total.....	1,955.65	543.85	2,499.50

*No black currant elimination work performed under the WPA program during 1936.
**Re-check of control areas.

Blister Rust Canker Elimination

During 1937, relief labor was used on blister rust canker elimination work in five of the Northeastern States. Such activities were confined to publicly-owned white pine plantations containing at least 20% infection on trees under 25 feet in height. In some instances, the trees were pruned to be about half their height, as experience has shown that it is more practical to follow this procedure, especially with inexperienced labor, than to search for and destroy the individual blister rust cankers on the lower branches. The results of the 1937 canker elimination work and the totals for the entire W.P.A. Program are shown in Tables 18 and 19.

Table 18 - Blister Rust Canker Elimination Work Under W.P.A. Program in Northeastern States during 1937.

State	No. Towns	Est. No. Pines Examined	No. Partially Infected Pines Cut Down	No. Pines Treated For Infection	No. Cankers Removed		Total Man Days	Cost			
					Branch	Stem		Local	State	W.P.A.	Total
Conn.	2	22,681	5,781	858	711	-	219	-	-	779.37	779.37
N.H.	3	139,200	34,322	11,405	12,450	-	1176	380.00	20.50	3336.85	3786.35
Mass.	4	85,944	9,540	2,895	3,295	-	1993	442.00	67.93	7621.67	8152.65
N.Y.	11	36,881	35,215	72,749	96,882	-	3639	240.00	721.92	14,784.23	15,749.15
Vermont	6	70,910	2,509	12,028	34,149	914	745	-	-	3118.85	3118.85
Total	26	355,496	104,896	99,715	147,497	914	7822	1062.00	618.40	29,630.00	31,086.40

Notes on costs:- Includes cost of personnel assigned to canker elimination work, crew transportation, and cost of equipment and supplies.

Table 19. - Blister Rust Canker Elimination Work Under W.P.A. Program in Northeastern States, 1935-1937, inclusive.

State	Est. No. Pines Examined	No. Fatally Infected Pines Cut Down	No. Pines Treated For Infection	No. Cankers Removed		Total Man Days	Cost			
				Branch	Stem		Local Coop.	State	W.P.A.	Total
N.H.	28,581	5,731	638	711	-	219	-	-	779.37	779.37
Vt.	170,700	35,565	13,876	14,970	42	1,659	380.00	20.50	4924.65	5325.15
Mass.	83,944	9,320	2,895	3,295	-	1,993	443.00	67.98	7621.67	8132.65
N.Y.	935,069	123,235	123,034	158,848	-	8,132	240.00	724.92	32,304.40	33,269.32
Penna.	78,910	2,309	12,028	34,149	914	745	-	-	3118.85	3118.85
Totals	1,297,204	176,210	152,471	211,973	956	12,748	1063.00	815.40	48,778.94	50,657.34

Special Field Studies -

Pine Infection Studies:

W.P.A. laborers were used for 2,912 man days during the period October 1 to December 31, 1937 in five of the Northeastern States (Maine, New Hampshire, Vermont, Massachusetts and New York) examining white pines in protected and unprotected areas to determine the effectiveness of control work and the damage being caused by blister rust. The white pines were examined for infection on 26 miles of rod-wide strip lines and in 210 plots, comprising 228½ acres in 93 townships. The data for these studies are being summarized at the Cambridge Office, and a special report will be prepared showing the results.

North Hudson, New York Experimental Area

From 2-6 W.P.A. workers assisted one of the Regional Office employees for 433 man days during the period May-November, 1937 in a re-examination of the numerous study plots on the North Hudson, New York experimental area. Due to lack of regular funds, this project could not have been undertaken during 1937 if the W.P.A. personnel had not been available.

State and Local Cooperation on W.P.A. Program

The states and local cooperators continued to give excellent support to the W.P.A. projects in this Region during 1937 as evidenced by a total expenditure of \$42,030.77 to supplement the W.P.A. funds. This amount includes contributions by eight states, two counties, 28 towns, and 68 individuals.

State funds were used chiefly for field supervision and checking, crew foreman, transportation, and a small amount for equipment. The county and town expenditures were mainly for transportation of W.P.A. crews. In several instances, the continuance of the W.P.A. control projects in these localities depended primarily on this cooperation, as adequate W.P.A. funds were not available for transportation. Cooperation by private land owners under the W.P.A. Program represents the cost of additional labor furnished by these individuals.

The W.P.A. projects in Maine and New Hampshire have also stimulated town cooperation under the Regular Cooperative Program. Town appropriations for control work in these two states during 1937 were approximately 29% more than the last year prior to the inauguration of the W.P.A. Program.

Tables 20 and 21 show the amount of state and local cooperative funds spent in conjunction with the W.P.A. Program during 1937 and the period 1935-1937, inclusive.

Table 20. - State and Local Cooperative Funds Spent in Conjunction With W.P.A. Program in Northeastern States During 1937.

State	State Funds	County Funds		Town Funds		Individual Funds		Total
		No. Counties	Amount	No. Towns	Amount	No. Indiv.	Amount	
Del.	4,414.92	1	—	7	1,107.66	2	20.25	5,542.84
D.C.	199.14	1	99.50	7	317.60	—	—	615.34
Pa.	43.00	—	—	9	3,901.70	—	—	3,944.70
Md.	1,132.30	—	—	5	2,070.37	62	160.40	3,363.16
R.I.	—	—	—	—	—	—	—	—
Conn.	119.53	—	—	—	—	—	—	119.53
N.J.	27,041.93	1	16.00	—	—	2	254.40	27,312.33
N.Y.	606.55	—	—	—	—	—	—	606.55
Delmar.	356.70	—	—	—	—	2	189.00	545.70
Totals	33,494.19	2	115.50	28	7,396.73	63	624.05	42,080.47

Table 21. - State and Local Cooperative Funds Spent in Conjunction With W.P.A. Program in Northeastern States, 1935-1937, Inclusive.

State	State Funds	County Funds		Town Funds		Indiv. Funds		Total
		No. County Contributions	Amount	No. Town Contributions	Amount	No. Indiv.	Amount	
Del.	7,236.25	—	—	17	1,702.06	2	20.25	8,958.56
D.C.	2,058.94	3	1,086.50	18	664.75	—	—	3,810.19
Pa.	467.90	—	—	23	15,615.45	—	—	16,083.35
Md.	4,329.85	—	—	20	8,945.07	238	1286.10	14,561.02
N.J.	1,114.98	—	—	—	—	—	—	1,114.98
Conn.	1,535.93	—	—	1	176.00	—	—	1,711.93
N.Y.	70,392.59	3	16.00	—	—	2	254.40	70,662.99
Delmar.	941.86	—	—	—	—	—	—	941.86
Summ.	356.70	—	—	—	—	4	252.00	608.70
Totals	88,403.91	4	1,102.50	61	25,099.32	246	1612.76	116,418.48

Table 22 - W.P.A. Allotments For Blister Rust Control in Northeastern States, 1935-1937, Inclusive.

Appropriation 001089

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Penna.	Totals
Original allotment(1)	255,262.00	250,587.00	151,283.00	157,662.00	20,212.00	51,127.00	421,804.00	2,958.00	200,719.00	1,511,015.00
Recessions-6/10/35	31,500.00	35,000.00	22,500.00	20,000.00	5,000.00	6,000.00	56,500.00	-	32,000.00	202,500.00
Recessions-7/8/36	26,000.00	18,500.00	13,000.00	13,000.00	2,000.00	3,500.00	37,000.00	1,000.00	18,000.00	132,000.00
Recessions-10/20/37	199.51	199.56	93.28	400.00	54.48	100.68	174.31	64.51	75.59	1,338.94
Total funds-(001089)	249,562.49	235,887.11	141,684.72	150,269.00	19,157.52	48,526.32	402,129.69	3,893.49	186,673.11	1,455,116.00

(1) July 22, 1935.

Appropriation 201085

Original allotment(2)	53,600.00	34,100.00	16,200.00	23,500.00	4,500.00	2,300.00	91,700.00	800.00	24,500.00	252,800.00
Recessions-8/24/36	-	25,300.00	10,000.00	-	-	-	25,000.00	-	7,500.00	67,800.00
Recessions-8/24/36	3,300.00	-	-	-	-	1,600.00	-	-	-	4,900.00
Recessions-9/15/36	46,500.00	52,600.00	33,200.00	30,000.00	2,900.00	7,000.00	69,000.00	600.00	37,000.00	278,800.00
Recessions-11/27/36	-	-	-	5,000.00	1,000.00	1,000.00	10,000.00	-	1,000.00	18,000.00
Recessions-11/27/36	-	14,000.00	3,000.00	-	-	-	-	-	-	17,000.00
Recessions-12/31/36	-	-	3,340.00	-	-	-	4,000.00	-	-	7,340.00
Recessions-1/4/37	-	-	-	-	-	310.00	-	-	-	310.00
Recessions-1/15/37	-	-	3,000.00	-	-	-	-	-	-	3,000.00
Recessions-1/15/37	-	-	-	-	-	-	-	-	3,000.00	3,000.00
Recessions-2/13/37	8,100.00	5,600.00	4,400.00	2,100.00	-	900.00	16,920.00	-	4,000.00	42,020.00
Recessions-3/8/37	9,510.00	9,400.00	7,750.00	11,730.00	430.00	1,550.00	17,750.00	140.00	6,740.00	63,000.00
Recessions-5/12/37	10,690.00	10,020.00	6,240.00	5,820.00	430.00	1,250.00	14,960.00	740.00	5,450.00	55,000.00
Recessions-10/12/37	2,000.00	2,200.00	2,800.00	4,100.00	60.00	825.00	3,500.00	75.00	3,800.00	19,300.00
Total funds-(201085)	123,100.00	120,820.00	71,650.00	74,050.00	9,200.00	11,885.00	237,830.00	1,605.00	79,390.00	729,500.00

(2) July 28, 1936.

Appropriation 501082

Original allotment(3)	39,720.00	41,370.00	28,610.00	39,550.00	1,550.00	4,130.00	76,120.00	1,580.00	29,740.00	262,700.00
Recessions-10/1/37	-	-	-	-	-	-	-	260.00	-	260.00
Recessions-10/1/37	-	-	-	260.00	-	-	-	-	-	260.00
Recessions-11/10/37	-	-	-	1,000.00	-	-	-	-	-	1,000.00
Recessions-11/10/37	-	-	-	-	-	-	1,000.00	-	-	1,000.00
Recessions-12/6/37	-	-	1,000.00	-	-	-	-	-	-	1,000.00
Recessions-12/6/37	-	-	-	-	-	-	-	-	1,000.00	1,000.00
Recessions-12/17/37	-	200.00	-	100.00	-	-	200.00	-	1,400.00	1,900.00
Recessions-12/17/37	-	-	1,500.00	-	-	-	-	-	-	1,500.00
Total funds-(501082)	39,720.00	41,370.00	31,510.00	40,190.00	1,550.00	4,130.00	76,920.00	1,240.00	27,240.00	262,700.00

(3) July 10, 1937.

Table 23. - Total W.P.A. Expenditures During Calendar Year 1937 For The Various Blister Rust Control Projects In The Northeastern States.

State	Supervision and B.R.C. Agent Activities	Eradication Assistants and Checkers	Ribes Eradication	Black Currant Elimination	Nursery Sanitation	Blister Rust Control Elimination	Wild Total		Totals
							Mapping	General	
Ala.	0,718.87	-	35,554.50(1)	-	-	779.37	26,323.60	2,211.03	72,870.37
Cal.	5,338.53	29.88	33,322.49	-	21.12	3,335.85	27,365.95	1,000.12	72,811.00
Ill.	5,135.67	-	21,333.00	-	-	7,621.67	15,844.00	4,806.32	51,939.91
Ind.	7,524.33	-	21,300.32	545.85	154.59	-	16,445.51	551.20	52,901.61
Iowa	324.23	-	1,705.02	-	33.00	-	1,505.43	-	2,159.70
Mich.	1,501.04	-	2,261.07	-	12.24	-	4,225.74	670.20	5,778.29
Conn.	17,830.08	90.24(2)	72,081.40(3)	-	132.07	14,724.26	28,737.30	3,427.13	138,610.34
N.Y.	634.53	-	1,631.35	-	-	-	-	-	2,265.94
Pa.	5,114.40	-	24,562.33	-	477.51	3,118.85	8,852.77	-	45,225.56
Sum.	61,116.51	119.62	213,863.83	545.85	870.33	29,690.00	129,159.35	13,685.88	448,078.11

(1) Includes \$19.00 W.P.A. funds expended under Regular Cooperative Program.

(2) Spent in conjunction with E.C.W. Program.

(3) Includes \$245.76 W.P.A. funds expended under S.C.S. Program.

An additional W.P.A. expenditure of \$15,993.06 was incurred at the Cambridge Regional Office during 1937. Of this amount, \$13,092.74 was for salaries and wages and \$2,890.32 for expenses.

Table 24. - Total W.P.A. Expenditures For The Various Blister Rust Control Projects in The Northeastern States During Period 1935-1937, Inclusive.

State	Supervision and B.R.C. Agent Activities	Eradication Assistants and Checkers	Ribes Eradication	Black Currant Elimination	Nursery Sanitation	Blister Rust Canker Elimination	Field Data		Total
							Mapping	General	
Maine	29,735.51	19,914.38	294,988.13 (1)	-	-	-	64,951.25	2,221.83	411,811.10
N.H.	32,426.48	18,730.43	269,036.30	-	420.12	779.37	63,936.61	9,541.20	394,921.01
Vt.	22,571.47	12,371.02	158,263.43	-	218.27	4,924.65	40,203.94	4,806.62	248,359.30
Mass.	25,869.53	6,734.62 (2)	140,667.17	2,256.60	957.49	7,621.67	34,281.05	2,418.41	218,356.57
R.I.	1,223.49	-	25,131.59	-	93.00	-	3,443.36	-	29,891.44
Conn.	3,819.70	2,383.15	45,792.44	-	171.59	-	8,700.56	3,374.74	64,242.18
N.Y.	60,534.53	21,849.57 (3)	518,435.69 (4)	-	1,225.32	32,334.40	76,880.38	3,427.13	714,737.01
N.J.	805.80	991.25	5,493.66	-	-	-	-	-	7,290.71
Penna.	22,621.69	15,953.23	212,403.47	-	715.33	3,113.85	37,421.26	-	292,239.01
Totals	197,658.40	98,977.65	1,670,217.38	2,256.60	3,801.12	48,778.94	329,368.41	25,789.83	2,377,349.33

- (1) Includes \$19,00 W.P.A. funds expended under Regular Cooperative Program.
 (2) Includes \$551.50 W.P.A. funds expended under E.C.W. Program.
 (3) Includes \$90.24 W.P.A. funds expended under E.C.W. Program.
 (4) Includes \$245.76 W.P.A. funds expended under S.C.S. Program.

An additional W.P.A. expenditure of \$48,050.03 was incurred at the Cambridge Regional Office during the period 1935-1937, inclusive. Of this amount, \$37,341.02 was for salaries and wages and \$10,709.01 for expenses.

PERCENTAGE OF TOTAL VPL EXPENDITURE TO RESPECTIVE PORTLANDS IN STATES PAID FOR EACH PROJECT

LEGEND

- Blister Current Elimination - Nursery Sanitation - Blister Rust Control Activities
- Eradication Assistants and Checkers
- General Supervision and Blister Rust Control Agents Activities
- Field Data (Pre-eradication surveys and plot studies)
- Ribes Eradication

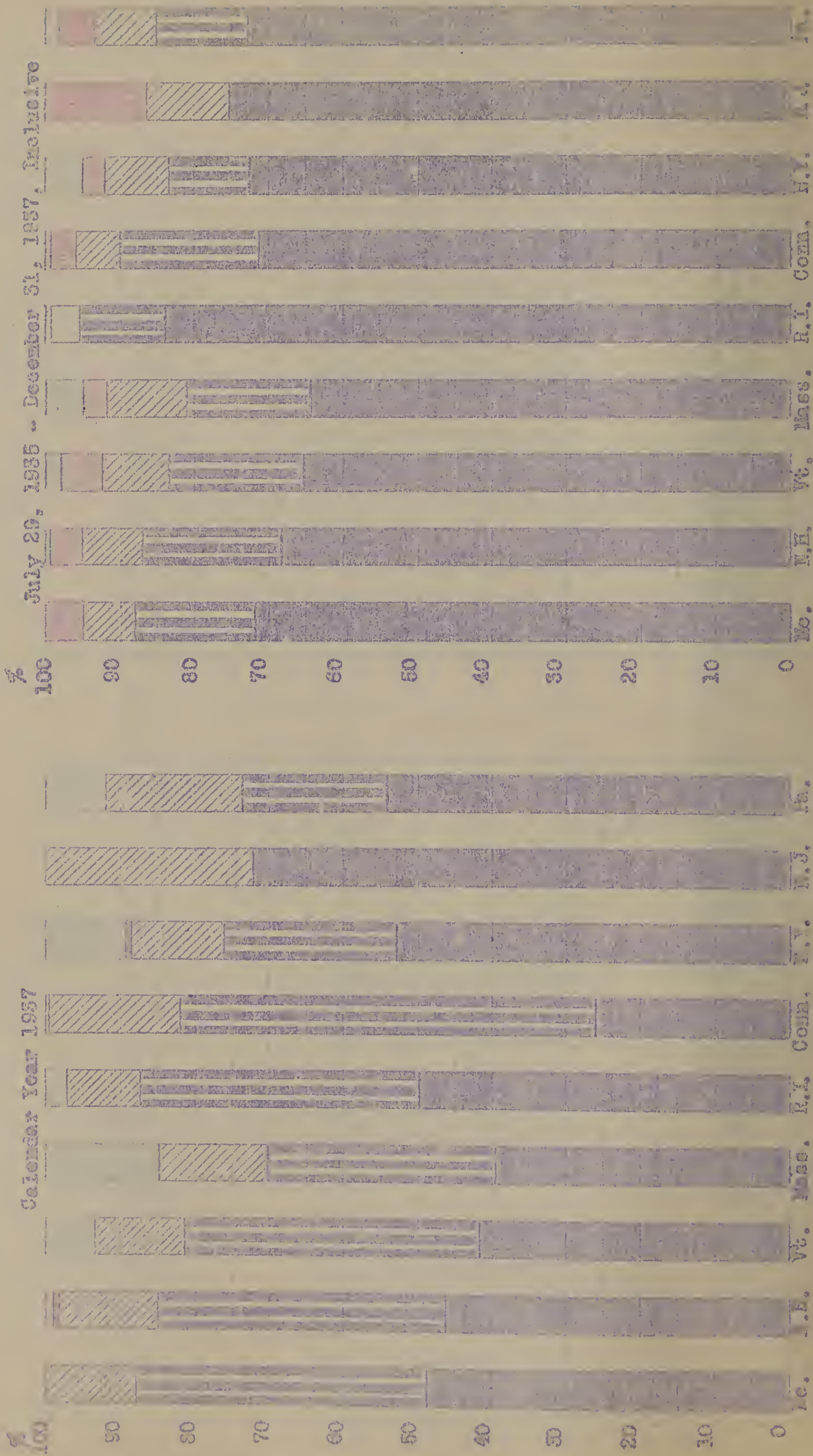


Table 25. - Total Expenditures, By Cooperating Agencies, Under W.P.A. Program in Northeastern States During Calendar Year 1937.

State	State Funds	Towns	Individuals	Counties	B.E. & P.Q.	W.P.A.	Totals
Maine	4,414.93	1,107.66	20.25	-	17.60	72,857.20(1)	78,417.64
N.H.	199.14	317.00	-	99.50	205.90	72,353.06	73,174.60
Vt.	43.00	3,901.70	-	-	-	51,559.04	55,503.74
Mass.	1,132.38	2,070.37	160.40	-	5.51	54,901.04	58,269.70
R.I.	-	-	-	-	-	3,438.76	3,438.76
Conn.	119.53	-	-	-	15.29	8,778.99	8,913.81
N.Y.	27,041.96	-	254.40	16.00	25.11	136,514.43(2)	163,651.95
N.J.	606.55	-	-	-	-	2,265.94	2,872.49
Penna.	336.70	-	189.00	-	4.00	45,225.66	45,755.36
Totals	33,894.19	7,396.73	624.05	115.50	273.41	447,694.17	489,998.05

(1) In addition, \$19.00 W.P.A. funds were expended for Ribes eradication project under "Regular Cooperative Program".

(2) In addition, \$90.24 W.P.A. funds were expended under the E.C.W. Program and \$245.76 under S.C.S. Program.

Table 26. - Total Cooperative Expenditures, By Projects, Under W.P.A. Program in Northeastern States During Calendar Year 1937.

State	Supervision and B.R.C. Agent Activities	Ribes Eradication	Erad. Assistants and Checkers	Black Currant Elimination	Nursery Sanitation	Ribes Com- pensation	Blister Rust Canker Elimination	Field Data		Total
								Mapping	General	
Maine	8,715.87	40,334.64	588.30	-	-	-	-	26,557.00	2,221.63	78,417.64
N.H.	9,836.53	33,754.49	234.03	-	21.12	-	779.37	27,528.02	1,021.04	73,174.60
Vt.	6,186.67	23,845.00	-	-	-	-	3,786.35	16,339.20	5,346.52	55,503.74
Mass.	7,994.88	23,425.91	-	543.85	134.59	-	8,132.65	17,486.54	551.28	58,269.70
R.I.	334.26	1,705.02	-	-	93.00	-	-	1,306.48	-	3,438.76
Conn.	1,601.04	2,261.07	-	-	12.24	-	-	4,241.03	793.43	8,913.81
N.Y.	17,398.08	88,425.48	6,881.00	-	260.87	-	15,749.18	29,711.37	5,225.97	163,651.95
N.J.	634.58	1,631.35	606.55	-	-	-	-	-	-	2,872.49
Penna.	3,414.40	24,699.03	-	-	666.31	-	3,118.85	3,856.77	-	45,755.36
Totals	61,116.31	240,082.00	8,309.88	543.85	1,188.13	-	31,566.40	132,026.41	15,165.07	489,998.05

Note: Summary does not include expenditures for Cambridge Regional Office.

Table 29. - W.P.A. Obligations For Salaries and Wages

Calendar Year 1937

State	Wages of Security - Wage Workers Relief	Non-Relief	Salaries of Appointees	Total Wages and Salaries
Maine	61,113.68	-	7,353.12	68,471.78
N.H.	61,541.71	19.84	8,638.06	70,199.61
Vt.	45,048.12	-	8,749.88	53,798.00
Mass.	54,614.14	-	8,379.74	62,993.88
R.I.	2,818.10	-	333.32	3,151.42
Conn.	6,792.81	-	1,080.00	7,872.81
N.Y.	116,244.17	631.10	10,207.83	127,083.10
N.J.	1,631.30	-	633.50	2,264.80
Penna.	37,239.95	115.81	5,633.16	42,988.92
Totals	387,040.02	966.25	52,013.41	440,019.68
% Total	88.0	0.2	11.8	100.0

July 22, 1935 to December 31, 1937

Maine	315,440.55	29,265.93	37,125.24	381,831.72
N.H.	284,338.59	49,441.01	39,216.22	373,045.82
Vt.	189,834.72	14,344.42	23,701.43	227,880.57
Mass.	207,028.57	6,651.57	33,123.69	246,803.83
R.I.	25,757.67	2,427.54	1,166.62	29,351.83
Conn.	53,648.29	1,196.95	3,550.50	58,395.74
N.Y.	596,983.94	27,463.07	72,981.17	697,428.18
N.J.	5,441.91	-	1,536.05	6,977.96
Penna.	235,559.85	11,324.04	25,527.03	272,409.92
Totals	1,914,082.59	121,109.54	241,800.95	2,277,032.88
% Total	83.8	5.1	10.6	100.0

Table 30. W.P.A. Obligations For Expenses

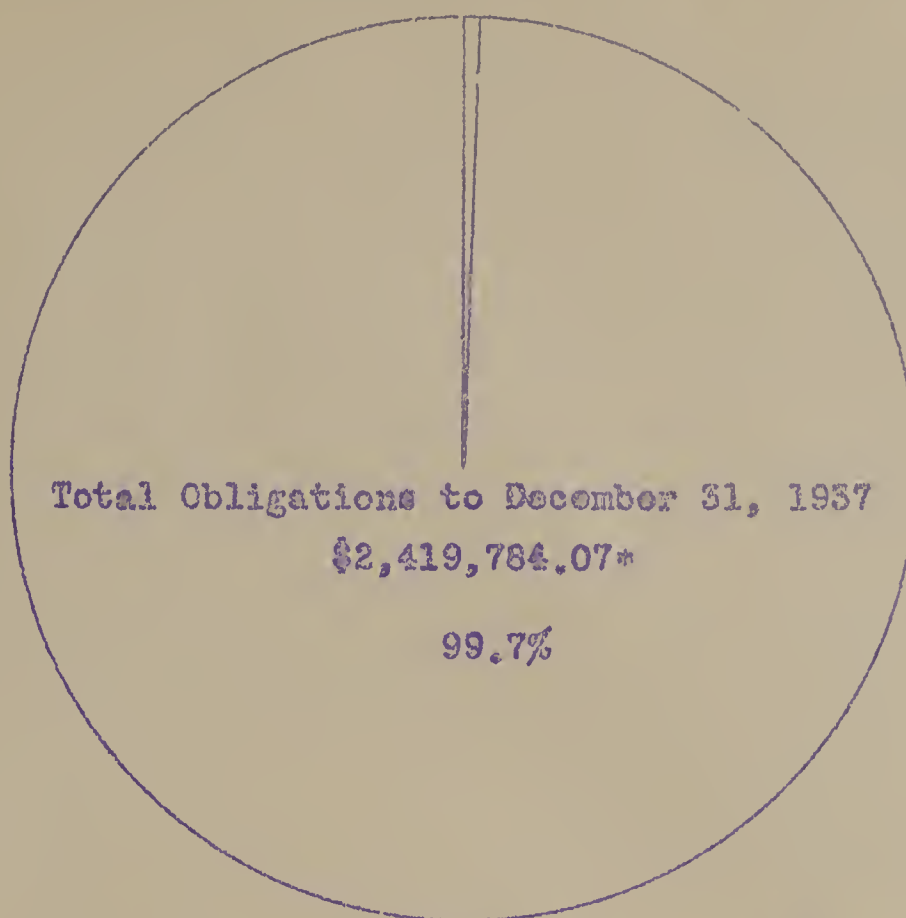
Calendar Year 1937

State	Purchases	Travel			Total
		Appointees	Crew	Transportation	
Maine	1,389.86	371.09	2,643.47		4,404.42
N.H.	742.73	8.55	1,402.17		2,153.45
Vt.	1,153.09	467.95	1,140.00		2,761.04
Mass.	2,777.58	239.84	188.64		3,206.04
R.I.	.94	-	290.40		291.34
Conn.	427.38	429.62	49.28		906.18
N.Y.	2,062.98	446.70	857.70		3,367.38
N.J.	1.28	-	-		1.28
Penna.	947.54	157.56	1,104.57		2,209.66
Totals	8,503.16	2,121.20	7,676.28		19,300.59
% Total	49.2	11.0	39.8		100.0

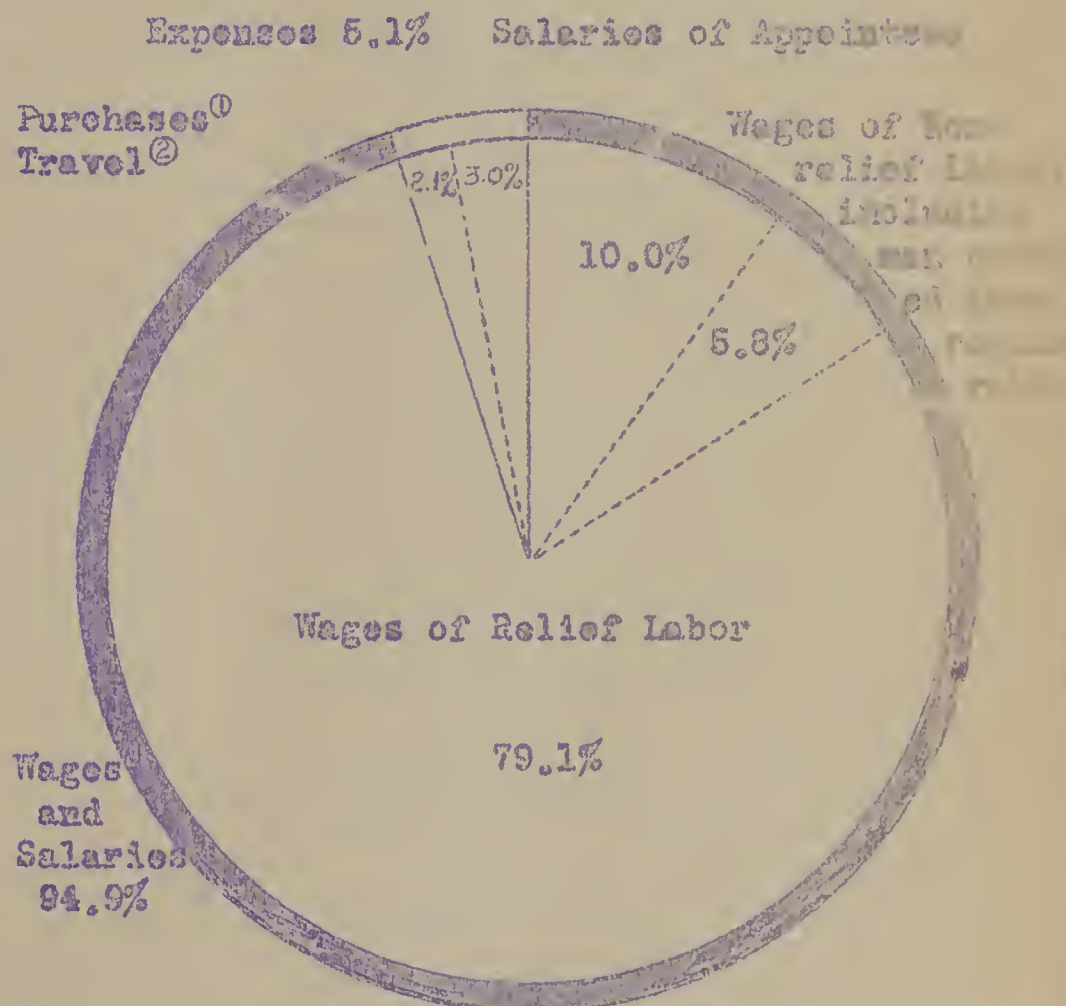
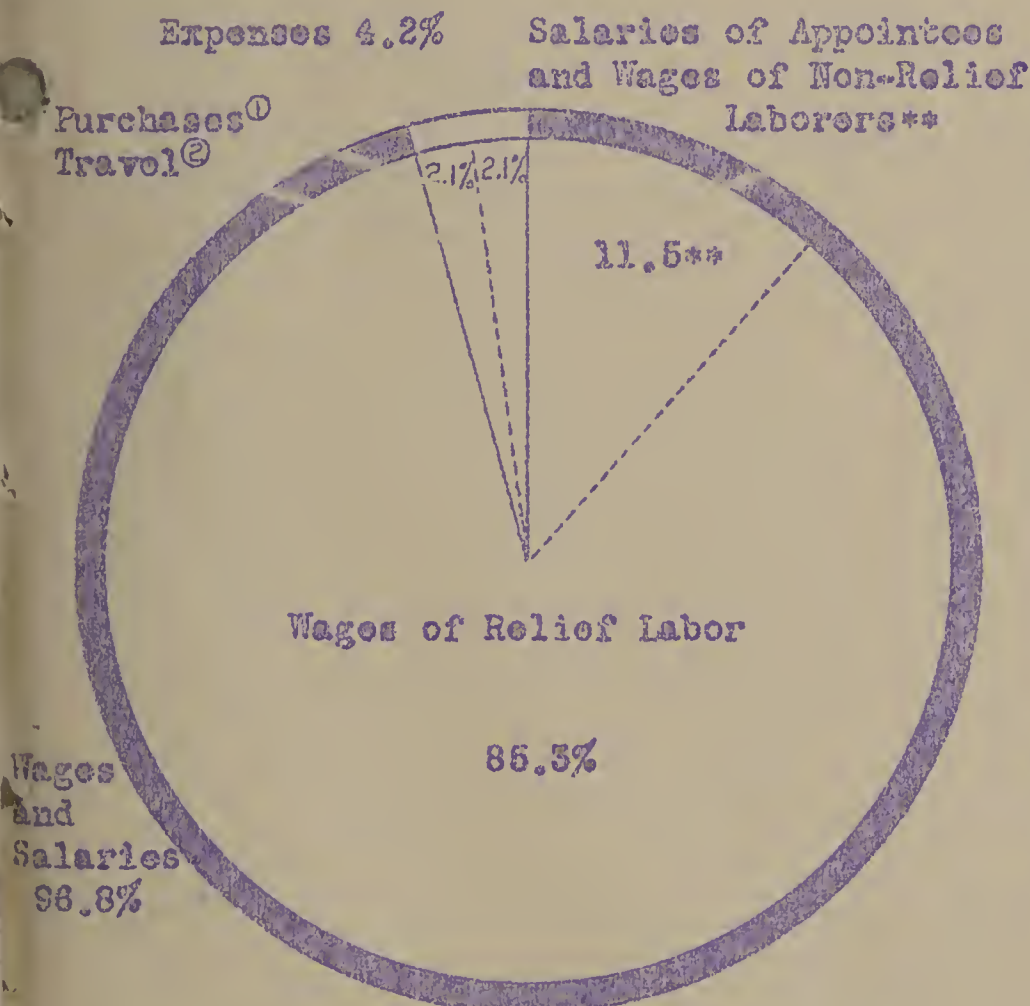
July 22, 1935 to December 31, 1937

Maine	8,950.14	7,542.73	13,483.43	29,976.35
N.H.	5,132.06	5,893.09	11,350.24	21,875.39
Vt.	6,614.16	5,296.50	3,568.07	15,478.73
Mass.	12,163.54	3,059.13	265.78	15,488.45
R.I.	27.59	.50	511.62	539.61
Conn.	2,506.45	1,948.93	1,390.13	5,844.46
N.Y.	10,374.38	3,931.65	2,989.35	17,345.34
N.J.	131.23	131.62	-	262.85
Penna.	5,579.82	4,271.34	5,978.45	15,829.61
Totals	51,478.87	31,675.32	39,537.00	122,691.19
% Total	42.0	25.8	32.2	100.0

W.P.A. FUNDS FOR BLISTER RUST CONTROL IN NORTHEASTERN STATES



Total W.P.A. Allotments - 1935 to 1937, Inclusive - \$2,427,684.08*



Total Obligations - Calendar Year 1937
\$459,320.27

Total Obligations - 1935 to 1937, Inclusive
\$2,419,784.07

*In addition \$5,840.00 administrative funds were made available as of July 1, 1937 of which \$5,614.29 were obligated on December 31, 1937.

**Wages of non-relief laborers amount to only 0.2% of total.

①. Supplies, materials and equipment (1034 vouchers).

②. Travel, subsistence and miscellaneous (1012 vouchers). For all supervisory personnel - also all transportation for W.P.A. crews.

ANNUAL REPORT
ON
WHITE PINE BLISTER RUST CONTROL
SOUTHERN APPALACHIAN DISTRICT

1 9 3 7

By

Roy G. Pierce, Pathologist
DIVISION OF PLANT DISEASE CONTROL



June 1938

TABLE OF CONTENTS

Introduction and Summary	Page 1
Omnibus Statistical Tables:	
Tables 1 and 2, Summary of 1937 Ribes Eradication by Working Program	3
Tables 3 and 4, Summary of all other Control Work, and Expenditures in 1937	4
Tables 1A and 2A, Summary of all Ribes Eradication by Working and Program for all years, including 1937	5
Tables 3A and 4A, Summary of all other Activities and Expenditures for Period 1918 to 1937 inclusive	6
Personnel in 1937	
Number of workers on rolls for each month from July 1935 to December 1937	9
Map showing location of Blister Rust Activities in 1937 under	
W. P. A.	9.2
Regular	9.3
C.C.C., S.C.S., N.Y.A.	9.4
Location of Blister Rust Control Activities	
W.P.A. in Georgia, Maryland and North Carolina	9.5
" in Tennessee, Virginia and West Virginia	9.6
Regular Project, R.A., S.C.A., C.C.C.	9.7
Expenditures	10
" for 1937 by states and by appropriation	10.2
" statement of, for Appropriation 001089, by years and by states	11
" classification for Appropriation 001089, by class of expenditures by six month period	13
" Appropriation 001089, Georgia	15
" " " Maryland	17
" " " North Carolina	19
" " " South Carolina	21
" " " Tennessee	23
" " " Richmond, Virginia	25
" " " Virginia	27
" " " West Virginia	29
" 201085 All states	31
" " Georgia	35
" " Maryland	37
" " North Carolina	39
" " Tennessee	41
" " Richmond, Va.	43
" " Virginia	45
" " West Virginia	47
Summary of Local and State Cooperative Funds	48.1
Local Control	
Summary for Region for 1936 and 1937 and for whole period 1918 - 1937	49

TABLE OF CONTENTS (Continued)

Local Control (continued)	Page
Summary for region by project	50
Summary for region by working	50.1
Summary for region by ownership	50.2
Summary of data for National Forests and National Lands for 1937	50.3
for period 1918 - 1937	50.4
for each state	50.41
for Georgia	50.42
for North Carolina	50.43
for South Carolina	50.44
for Tennessee	50.45
for Virginia	50.46
for West Virginia	50.47
Summary of Control Work in Georgia	51-54
Map of Georgia showing status of work	51.1
Summary of Control Work in Maryland	55-59
" " " " " North Carolina	60-64
" " " " " Tennessee	65-69
" " " " " Virginia	70-74
" " " " " West Virginia	75-79
Report on inspection of planting sites in Kentucky	80
Black Currant Eradication	86.1
Nursery Sanitation	
Kentucky	87
Delaware	92
Maryland	92
North Carolina	94
Tennessee	96
Virginia	96
West Virginia	98
Treatment of infected white pines	104
" " " " " Maryland	105
" " " " " Virginia	106
Infection Conditions	
Maryland	107
Virginia	110
West Virginia	114
Preeradication Surveys	
Georgia, Maryland	115
North Carolina, Tennessee	117
Virginia, West Virginia	118
Field Studies	
Maryland - Viking currants	120
Dormant eradication	120
Blister Rust study plots	120
Ribes infection study	122
North Carolina	
Come-back of cultivated bushes	123

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TABLE OF CONTENTS (Continued)

Informational Activities	Page 124
Transportation	
Costs of truck operation for $1\frac{1}{2}$ ton trucks	127
for $1/2$ ton trucks	128
Statement of ownership, models of trucks, etc.	130

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

CHICAGO, ILLINOIS

REPORT ON THE PROGRESS OF THE WORK

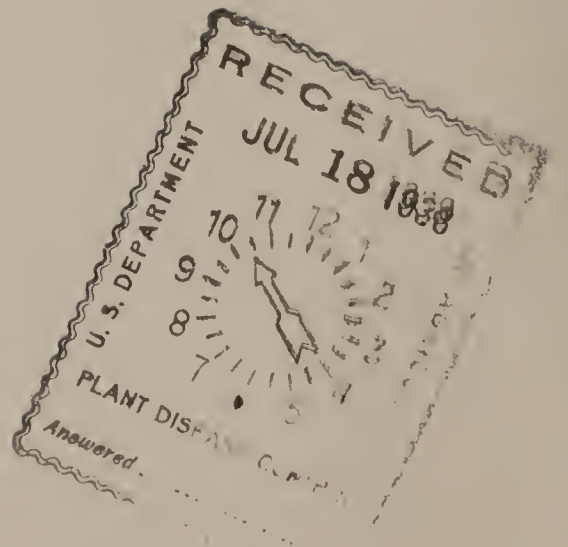
OF THE PHYSICS DEPARTMENT

1901

Graph Index

Graphs

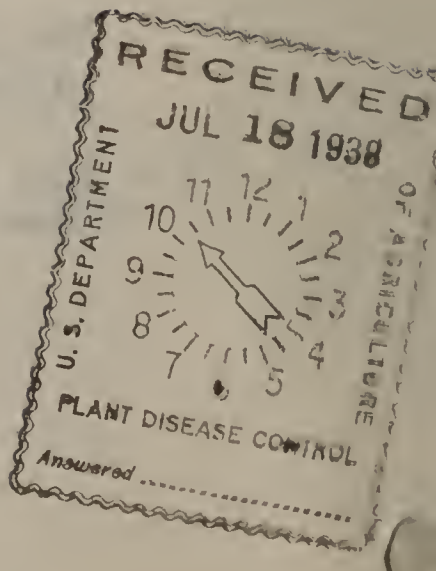
Lined Graph showing number of wild Ribes destroyed in the Southern Appalachian States by years - 1928 to 1937	Page 50.48
Lined graph showing number of cultivated Ribes destroyed in the Southern Appalachian States by years 1928 to 1937	50.49
Columnar graph showing the acreage worked in 1937 in each of the Southern Appalachian States	50.81
Columnar graph showing total Ribes destroyed in each of the Southern Appalachian States in 1936	50.82
Columnar graph showing amounts expended for Ribes eradication in 1937 in each of the States	50.83
Lined graph showing cost of operating $1\frac{1}{2}$ -ton trucks - Southern Appalachian States, July 1 to December 31, 1936	132
Lined graph showing cost of operating $1\frac{1}{2}$ -ton trucks - Southern Appalachian States January 1 to December 31, 1937	133



Index of Maps

<u>Maps</u>	Page
Map showing location of blister rust control activities under WPA in 1937 - Southern Appalachian District	9.2
Map of the Southern Appalachian District showing Location of blister rust control activities under Regular and Cooperative Funds in 1937	9.3
Map of the Southern Appalachian District showing location of blister rust control activities under CCC, S. C.S and NYA in 1937	9.4
Map of Georgia - Status of white pine blister rust control December 31, 1937	51.1
Map of Maryland showing status of white pine blister rust control and survey December 31, 1937	55.1
Map of North Carolina showing status of white pine survey and control December 31, 1937	60.1
Map of Tennessee showing status of white pine blister rust control	65.1
Map of Virginia showing status of survey and control work on non-federal lands	70.1
Map of Virginia showing status of survey and control work on Federal lands	70.2
Map of Kentucky showing counties in which Soil Conservation Service proposed white pine planting in 1937	81
Map of the Kentucky Forest Service Nursery at Louisville	91
Map of Virginia showing distribution of white pine blister rust	113
Map of West Virginia showing the status of white pine survey	119

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ANNUAL REPORT FOR BLISTER RUST CONTROL
in the SOUTHERN APPALACHIAN STATES
for the CALENDAR YEAR 1937

FOREWORD:

The following report of the blister rust control activities in the South has been made possible through the work of the State Leaders, Agents and their laborers, and the several annual reports, which are here acknowledged.

Continued cooperation has been received from our State Cooperators, which is gratefully acknowledged. Cooperation has been received also from the general public, who have permitted the destruction of their cultivated gooseberries and currants, the numbers amounting into the thousands.

I wish to express my appreciation for the opportunity afforded by the Works Progress Administration, in making funds available for our work. These funds have made it possible in the last four years to conduct Ribes eradication on a large scale throughout the South and have stimulated several of the States, notably, North Carolina and West Virginia, to making cash funds available for control work.

This report is largely statistical since summaries of the work in its various features are more clearly expressed and grasped through the use of figures than through the use of narrative.

For detailed reports on the work in each State I would refer one to the Annual Reports of the State Leaders.

The following persons are to be notified of the
results of the investigation of the case.

OMNIBUS STATISTICAL TABLES
OF ALL BLISTER RUST CONTROL WORK
IN
SOUTHERN APPALACHIAN STATES
IN 1937 AND FROM
1918 - 1937

TABLE I.
SUMMARY OF 1937 RIBES ERADICATION

States	1st Working				2nd Working				3rd Working				Totals				Percentage			Ribes Per Acre			Man-Days Per Acre		
	Acreage Worked	No. Ribes Destroyed		No. 8 hour man-days	Acreage Worked	No. Ribes Destroyed		No. 8 hour m-days	Acreage Worked	No. Ribes Destroyed		No. 8 hour m-days	Acreage Worked	No. Ribes Destroyed		No. 8 hour m-days	Acreage Worked			1st Work	2nd work	3rd work	1st Work	2nd Work	3rd Work
		Wild	Culti.			Wild	Culti.			Wild	Culti.			Wild	Culti.		1st Work	2nd Work	3rd Work						
Georgia	60,881	1,210,362	85,660	6,105	3,775	190,472	0	1,485	0	0	0	0	64,656	1,400,834	85,660	7,590	70	30	0	21.2	50.4	0	.10	.39	0
Kentucky	1,617	0	0	(1)	0	0	0	0	0	0	0	0	1,617	0	0	(1)	100	0	0	0	0	0	0	0	0
Maryland	12,165	287,283	492	1,785	4,158	60,005	181	809	3,234	41,281	82	447	19,557	388,569	755	3,041	62.2	21.3	16.5	23.6	14.5	12.8	.147	.195	.138
North Carolina	325,455	180,529	53,628	4,590	355,499	3,547	27,370	3,052	0	0	0	0	680,954	184,076	80,998	7,642	47.8	52.2	0	0.7	0.08	0	.014	.008	0
Tennessee	122,040	1,236,656	62,291	8,328.1	791	32,596	0	481.8	0	0	0	0	122,831	1,269,252	62,291	8,809.9	99	1	0	10.84	41.2	0	0.068	0.609	0
Virginia	153,502	331,647	5,891	5,916.8	13,183	745,660	0	6,965.1	3380	18937	0	638.4	170,065	1,096,244	5,891	13,520.3	90.3	7.7	2.0	2.2	56.5	5.4	.013	.528	.188
West Virginia	168,374	567,557	1,293	7,631	20,719	72,695	4	578	0	0	0	0	189,093	640,252	1,297	8,209	89.04	10.96	0	3.4	3.5	0	.045	.094	.0
Totals	844,034	3,814,034	209,255	34,355.9	398,125	1,104,975	27,555	13,370.9	6,614	60,218	82	1,085.4	1248,773	4,979,227	236,892	48,812.2	67.6	31.9	9.5	4.9	2.8	9.1	.041	.033	.164

(1) Work was done by an Agent, hence is not listed here since Man-Days labor does not include Agent's time.

TABLE II.
SUMMARY OF 1937 RIBES ERADICATION BY PROGRAMS
(including all work, 1st, 2nd and 3rd Workings)

States	(including all work, 1st, 2nd and 3rd Workings)																	
	Total Acreage Worked 1st 2nd & 3rd	Regular and Cooperative (a)				WPA and ERA				C. C. C.				Total Emergency Programs				No. 8 hour m-days
		Acreage Worked	No. Ribes Destroyed		No. 8 hour m-days	Acreage Worked	No. Ribes Destroyed		No. 8 Hr. M-Days	Acreage Worked	No. Ribes Destroyed		No. 8 Hr. M-Days	Acreage Worked	No. Ribes Destroyed			
			Wild	Culti.			Wild	Culti.			Wild	Culti.			Wild	Culti.		
Georgia	64,656				64,656	1,400,834	85,660	7,590					64,656	1,400,834	85,660	7,590		
Kentucky	1,617				1,617	0	0	(1)					1,617	0	0	(1)		
Maryland	19,557				19,557	388,569	755	3,041					19,557	388,569	755	3,041		
North Carolina	680,954				569,405	182,909	73,661	6,479	111,549	1,167	7,337	1,163	680,954	184,076	80,998	7,642		
Tennessee	122,831				122,831	1,269,252	62,291	8,809.9	0	0	0	0	122,831	1,269,252	62,291	8,809.9		
Virginia	170,065	8	258	0	11.7	169,927	1,095,549	5,891	13,468.1	130	439	0	40.5	170,057	1,095,986	5,891	13,508.6	
West Virginia	189,093	0	0	0	0	170,180	548,987	1,170	6,725	18,913	91,265	127	1,484	189,093	640,252	1,297	8,209	
	1,248,773	8	258	0	11.7	1,118,173	4,886,100/229,428	46,113		130,592	92,871	7,464	2,687.5	1248,765	4,978,969	236,892	48,800.5	

State	1st Working				2nd Working			
	Worked	Wid.	No. Riders Destroyed	No. Riders	Worked	Wid.	No. Riders	No. Riders
Alabama	60,881	1,216,282	95,840	0,100	2,110	0	0	100,000
Arkansas	12,182	207,282	400	1,710	4,158	0	0	60,000
California	225,152	120,222	68,620	4,220	222,422	3,222	0	3,222
Colorado	122,040	1,220,020	62,221	8,220.1	781	71,200	0	0
Florida	122,202	211,211	2,201	2,212.2	12,122	702,200	0	0
Georgia	122,214	207,217	1,222	7,021	20,212	72,212	0	0
Idaho	844,024	2,214,024	202,222	24,222.2	202,122	1,104,222	0	0

(1) Work was done by an agent, hence is not listed in the above table

State	1st Working				2nd Working			
	Worked	Wid.	No. Riders Destroyed	No. Riders	Worked	Wid.	No. Riders	No. Riders
Alabama	60,881	1,216,282	95,840	0,100	2,110	0	0	100,000
Arkansas	12,182	207,282	400	1,710	4,158	0	0	60,000
California	225,152	120,222	68,620	4,220	222,422	3,222	0	3,222
Colorado	122,040	1,220,020	62,221	8,220.1	781	71,200	0	0
Florida	122,202	211,211	2,201	2,212.2	12,122	702,200	0	0
Georgia	122,214	207,217	1,222	7,021	20,212	72,212	0	0
Idaho	844,024	2,214,024	202,222	24,222.2	202,122	1,104,222	0	0

TABLE III
SUMMARY OF ALL OTHER CONTROL WORK FOR 1937

States	Cultivated Black Currant Eradication	Nursery Sanitation		No. Ribes Destroyed	No. 8 hour M-Days	Federal Permits		Preeradication Survey No. Acres W. P. & Prot. Z.	No. 8 hour m-days	Treatment		Infected White Pine		Number 8 hour M-Days
		Number Nurseries Worked	No. White Pine in Nurseries			Required	Received			Number Trees Examined	Number Trees Rmv'd	Number Trees Treated	Number Cankers Removed	
Delaware	N O N E	1	0	0	(1)	0	0	0	0	0	0	0	0	0
Georgia	N O N E	0	0	0	0	0	0	208,631	1,762	0	0	0	0	0
Kentucky	N O N E	1	400,000	200	(2)	0	0	1,617	(2)	0	0	0	0	0
Maryland	N O N E	10	252,090	3,946	(1)	6	5	12,583	484	80,380	89	2,301	5,446	540
North Carolina	N O N E	16	58,112	4,239	87	0	0	677,166	7,310	0	0	0	0	0
Tennessee	N O N E	1	75,000	350	1 1/2	0	0	257,768	3,877.6	0	0	0	0	0
Virginia	N O N E	6	54,427	1,400	9	6	5	190,497	4,104	1,485	9	150	750	24.5
West Virginia	N O N E	2	297,000	750	1293	2	2	182,826	5,101	0	0	0	0	0
Totals		36	776,629	10,885	1380	14	12	1531,088	22,638.6	81,865	89	2,451	6,196	564.5

(1) Nursery Sanitation performed by Maryland State Leader and included under Supervision. Est. 7 Man-days in Maryland
(2) Work in Kentucky was performed by West Virginia Agent, his time being included under supervision.

TABLE IV.
SUMMARY OF EXPENDITURES FOR 1937

States	Total (Including All Coop. Funds)			By Program Reg. and Coop. (a)	Recapitulation (Federal Only) Emergency Program			Total	By Activities (Federal and State)					All Other Checking (1) Field Data & Miscellaneous
	Federal	State	Grand Total		WPA and ERA	C. C. C.	NYA		Supervision Including State & District	Ribes Eradication	Nursery Sanitation	Canker Elimination	Preeraadi- cation Survey	
Georgia	\$ 22,068.78	\$ 5,942.69	\$ 28,011.47	\$	\$ 22,068.78	\$ -		\$ 22,068.78	\$ 8,972.96	\$ 11,038.14	0	0	\$ 1,859.39	\$ 6,140.98
Delaware	22.30	0	22.30	22.30	0	0	0	0	22.30	0	0(2)	0	0	0
Kentucky	174.55	0	174.55	174.55	0	0	0	0	174.55	0	0(4)	0	(4)	0
Maryland	18,948.52	1,669.50	20,618.02	220.50	18,728.02	0	0	18,728.02	17,485.09	9,444.87	0 (2)	1,532.63	1,655.43	500.00
North Carolina	45,529.80	10,742.40	56,272.20	14.00	42,497.99	2,943.17	74.64	45,515.80	11,373.35	13,663.16	141.44	0	18,145.13	12,949.12
Tennessee	35,266.57	7,154.42	42,420.99	0	35,266.57	0	0	35,266.57	11,795.40	15,274.04	4.90	0	8,617.49	6,729.10
Virginia	56,087.43	1,463.69	57,551.12	4,733.86	51,223.33	130.24	0	51,353.57	27,468.18	22,614.06	269.94	37.20	6,477.99	683.75
West Virginia	58,095.01	1,148.20	59,243.21	240.40	54,856.61	2,998.00	0	57,854.61	12,871.99	27,205.55	490.40	0	18,545.57	129.70
Totals	\$236,192.96	\$28,120.90	\$264,313.86	\$5,405.61	\$224,641.30	\$6,071.41	74.64	\$230,787.35	\$80,163.88	\$99,239.82	906.68	1,569.83	55,301.00	27,132.65

(1) Includes Value of Cultivated currants and gooseberries destroyed.
(2) Nursery Sanitation in Delaware and Maryland was carried on by Mr. Yost, his expenses being charged to Supervision.
(3) Virginia figures include those for Richmond Office which expended 13,069.17
(4) Kentucky Nursery Sanitation \$21.85 and survey \$152.70 charged to supervision since carried only Agent Welch.

State	Work in Kentucky	Work in Virginia	Work in West Virginia	Total
Delaware	1	0	0	1
Georgia	0	0	0	0
Kentucky	1	0	0	1
Maryland	10	0	0	10
North Carolina	10	0	0	10
Tennessee	1	0	0	1
Virginia	0	0	0	0
West Virginia	0	0	0	0

TOTALS
 (1) Nursery operation performed by Kentucky State Nursery and Garden
 (2) Work in Kentucky was performed by West Virginia State Nursery and Garden

State	Federal	State	Total	Total (Including All Gov. Funds)
Georgia	22,000.78	0	22,000.78	22,000.78
Delaware	22.50	0	22.50	22.50
Kentucky	11.75	0	11.75	11.75
Maryland	28,000.00	1,000.00	29,000.00	29,000.00
North Carolina	0,000.00	10,000.00	10,000.00	10,000.00
Tennessee	38,000.00	1,150.00	39,150.00	39,150.00
Virginia	38,000.00	1,000.00	39,000.00	39,000.00
West Virginia	30,000.00	1,150.00	31,150.00	31,150.00
TOTALS	250,100.00	20,150.00	270,250.00	270,250.00

(1) Includes value of nursery operation and nursery stock
 (2) Nursery operation in Delaware and Maryland was carried on by the
 (3) Virginia figures include funds for Richmond Office which amounts
 (4) Kentucky Nursery operation was carried on by the State

TABLE IA.
SUMMARY OF ALL RIBES ERADICATION 1918-1937 (Inclusive)

States	Total Acreage White Pine	Acreage White Pine Worth Protecting	Acreage Control Areas Plus W. Pine Zones	Acreage Worked	1st Working		No. 8 hour m-dn- days	AEE Acreage Worked	2nd Working		No. 8 hour m-days	Acreage Worked	3rd Working		No. 8 hour m-days	Totals			No. 8 Hour Man- Days	PERCENTAGE Acreage Worked		
					Number of Ribes Destroyed				No. of Ribes Destroyed				No. of Ribes Destroyed			Acreage Worked	No. Ribes Destroyed			1st Work	2nd Work	3rd Work
					Wild	Culti.			Wild	Culti.			Wild	Culti.			Wild	Culti.				
Georgia	452,025	400,000	758,800	485,141	3,777,002	161,393	13,132	3,930	220,330	659	1,853	-	-	-	-	489,071	3,997,332	162,052	14,985	99	1	0
Kentucky	62,232	26,382	63,140	63,140	2,095	1,830	837	0	0	0	0	-	-	-	-	63,140	2,095	1,830	837	100	0	0
Maryland	81,983	76,163*	203,594	168,090	2,425,386	2,923	9,323	25,129	305,503	1,695	2,887	9,222	51,759	405	945	202,441	2,782,648	5,023	13,155	83.	12.	5.
North Carolina	1,099,413	1,099,413	2400,000	2,271,062	664,826	561,348	27,753	587,105	33,858	68,906	5,689	-	-	0	-	2,858,167	698,684	630,254	33,442	79.4	20.6	0
South Carolina	13,852	13,852	26,535	26,535	0	7,128	1,241	1,000	0	347	174	-	-	-	-	27,535	0	7,475	1,415	96.37	3.63	0
Tennessee	450,885	375,286	531,193	382,631	2,860,515	93,870	16,074.1	3,598	144,940	0	755.8	-	-	-	-	386,229	3,005,455	93,870	16,829.9	98.6	1.4	0
Virginia	153,986	205,143	515,081	478,086	3,724,672	46,653	43,053.3	27,798	1044,769	53	10,622.6	3,380	18,937	-	638.4	509,264	4,788,378	46,706	54,314.3	93.8	5.5	0.7
West Virginia	200,000	186,000	430,000	317,094	1,464,010	7,100	17,713.1	34,316	147,215	4	1,928.4	-	-	-	-	351,410	1,611,225	7,104	19,641.5	90.24	9.76	0
Totals	2,514,358	2,382,239	4928,343	4,191,779	14,918,506	882,245	129,126.5	682,876	1896,615	71,664	23,909.8	12,602	70,696	405	1,583.4	4,887,257	16,885,817	954,314	154,619.7	85.8	13.95	0.25

* Partially Estimated

TABLE IIA.
SUMMARY OF RIBES ERADICATION 1918-1937 (Inclusive)
(1st, 2nd and 3rd Workings)

SUMMARY OF RIBES ERADICATION 1918-1937 (inclusive)																					
(1st, 2nd and 3rd Workings)										E. C. W.			P. W. A. or NRA			Total Emergency Programs					
States	Total Acreage Worked 1st, 2nd and 3rd.	Regular and Cooperative (a)			W. P. A. and RA				Acreage Worked	No. Ribes Destroyed		No. 8 hour m-days	Acreage Worked	Wild	Culti.	No. 8 hour m-days	Acreage Worked	Wild	Culti.	No. 8 hour m-days	
		Acreage Worked	No. Ribes Destroyed	No. 8 Hour M-Days	Acreage Worked	Wild	Culti.	No. 8 hour m-days		Wild	Culti.										No. Ribes Destroyed
			Wild	Culti.																	
Georgia	469,071	0	0	0	0	297,883	3,993,181	140,950	14,201	15,493	0	235	51	175,695	4,151	20,867	733	489,071	3,997,332	162,052	14,985
Kentucky	63,140	0	0	0	0	1,617	0	0	0	0	0	0	0	61,523	2,095	1,830	837	63,140	2,095	1,830	837
Maryland	202,441	985	0	1	0	67,845	1,210,479	2,481	8,306	6,175	381,319	12	1,260	127,436	1190,850	2,529	3,589	201,456	2,782,648	5,022	13,155
North Car.	2,858,167	5,195	690	2,269	105	1,782,072	672,626	493,344	27,653	165,717	1,527	7,606	1,733	905,183	23,841	127,035	3,951	2,852,972	697,994	627,985	33,337
South Carolina	27,535	0	0	0	0	4,050	0	556	596	888	0	0	21	22,597	0	6,919	798	27,535	0	7,475	1,415
Tennessee	386,229	0	0	0	0	240,533	2,727,669	91,812	14,656.9	23,356	111,091	144	734	122,340	166,695	1,914	1,439	386,229	3,005,453	93,870	16,829.9
Virginia	509,264	10,234	59,630	2	107.2	315,666	2,143,265	25,446	26,961.6	58,964	1,865,435	31	21,774.5	124,400	720,048	21,227	5,471	499,030	4,728,748	46,704	54,207.1
West Virginia	351,410	268	2	0	0	257,104	967,000	2,274	12,182.1	47,993	303,192	127	5,049.4	46,045	341,031	4,703	2,410	351,142	1611,223	7,104	19,641.5
Totals	4,887,257	16,682	60,322	2,272	212.2	2966,770	11,714,220	756,863	104,556.6	318,586	2,662,564	8,155	30,622.9	1,585,219	2448,711	187,024	19,228	4,870,575	16,825,495	952,042	154,407.5

* Work done by Agent, hence charged to supervision

TABLE IIIA
SUMMARY OF ALL OTHER CONTROL WORK 1918 - 1937 Inclusive

State	Cultivated Black Currant Eradication				Nursery Sanitation				Preeradication Survey		Treatment Infected White Pine					
	Number	Number	Number	Number	Number	Acreage	No. Ribes Destroyed		No. 8	No. Acres Mapped	No. 8	Number	Number	Number	Number	Number 8
	Inspections Made	Locations Found	C. B. C. Destroyed	8 hr. m-days	Nurseries Worked	In Nurs. Control A.	Wild	Culti.	hour m-days	White Pine and Prot. Zone	hour m-days	Trees Examined	Trees Treated	Trees Removed	Cankers Removed	hour m-days
Georgia	19	19	1,126	20	1	350	0	8	0.5	644,631	2,783	0	0	0	0	0
Delaware	0	0	0	0	1	0	0	0	(1)	0	0	0	0	0	0	0
Kentucky	0	0	0	0	1	200	0	24	(1)	63,140	(1)	0	0	0	0	0
Maryland	25	25	2,211	0	12	4,121	11,390	1681	326(1)	151,894	1,231	83,258	3,656	103	11,517	6,230
North Carolina	2	2	3	0.25	16	4,239	87	704	115.0	1,868,306	8,140	0	0	0	0	0
South Carolina	0	0	0	0	0	0	0	0	0	26,535	0	0	0	0	0	0
Tennessee	0	0	0	0	2	850	0	0	3.5	520,287	5,614.6	0	0	0	0	0
Virginia	24	24	12	0.25	6	13,191	192	1,830	108.1	522,953	7,670	19,391	2,950	408	15,668	4800
West Virginia	1	1	0	0.5	2	780	20,499	337	740.7	385,823	9,146.18	0	0	0	0	0
Totals	71	71	3,352	21.0	41	23,731	32,168	3,071	1,329.8	4,183,569	34,584.78	102,649	6,606	511	27,185	1,1110

(1) In Delaware, Kentucky and Maryland, work in 1937 was done by Agent, hence charged to supervision.

TABLE IVA
SUMMARY OF ALL EXPENDITURES 1918-1937 Inclusive

State	Total			Recapitulation By Program (Federal only)					By Activities (Federal and State)						
	Federal	State (Incl. all coop. Funds)	Grand Total	Regular and Coop. (a)	W. P. A. E. R. A. and N. Y. A.	C. C. C.	P. W. A.	Total Emergency Programs	Supervision Incl. State and District	Ribes Eradication	CBC Eradication	Nursery Sanitation	Canker Elimination	Preeradication Survey	All Other Checking Field Data Misc. (2)
Georgia	\$ 59,823.54	\$ 8,259.19	\$ 68,118.73	\$ 41.27	\$ 52,157.08	\$ 281.66	\$ 7,343.53	\$ 59,782.27	\$ 13,356.29	\$ 34,463.48	\$ 65.00	\$ 3.20	\$	\$ 13,189.78	7,040.98
Kentucky	7,727.41	290.00	8,017.41	1,487.63	0	0	6,239.78	6,239.78	2,847.26	4,345.24	0	0		(2)	824.91
Maryland	71,204.00	5,272.00	76,476.00	5,460.45	42,304.64	1273.00	22,165.91	65,743.55	27,877.59	39,639.85	0	430.70	1760.66	4,681.90	2,085.30
Delaware	25.80	0	25.80	25.80	0	0	0	25.80	0	0	0	0	0	0	0
North Carolina	145,298.68	16,323.90	161,622.58	3,305.44	109,128.29	5557.85	27,307.10	141,993.24	29,064.88	91,652.42	1.00	330.86	0	21,227.69	19,345.73
South Carolina	7,731.40	610.00	8,341.40	0	1,876.91	43.04	5,811.45	7,731.40	666.24	7,390.16	0	0	0	(2)	285.00
Tennessee	72,332.28	9,594.40	81,926.68	1,420.38	56,179.91	1860.87	12,871.12	70,911.90	23,727.40	35,926.48	0	10.34	0	12,749.22	9,513.24
Virginia	198,008.25	4,225.69	202,233.94	14,561.41	100,685.21	47178.14	35,583.49	183,446.84	55,398.21	116,802.18	1.00	722.17	990.94	27,635.69	683.75
West Virginia	128,347.72	4,362.13	132,709.85	6,035.56	93,503.37	10943.29	17,865.50	122,312.16	28,391.74	63,725.00	2.00	2768.76	0	37,692.65	129.70
Totals	\$690,499.08	\$48,973.31	\$739,472.39	\$32,337.94	\$455,835.41	\$67,137.85	\$135,187.88	\$658,161.14	\$181,355.41	\$393,944.81	\$69.00	\$4266.00	\$2751.60	\$117,176.93	\$39,908.61

(1) Up to 1935 Incl. Ribes Eradication included Agent's salaries and expenses for all States and State leaders salary and expenses in Georgia and South Carolina

(2) In Kentucky, 1934 work was all lumped under Ribes eradication.

(3) Includes value of cultivated Ribes destroyed at 10¢ per bush.

State	Number of Observations	Number of Observations Less Than 100	Number of Observations Less Than 100 Less Than 100	Number of Observations Less Than 100 Less Than 100
Georgia	13	13	13	13
Delaware	0	0	0	0
Kentucky	0	0	0	0
Maryland	25	25	25	25
North Carolina	2	2	2	2
South Carolina	0	0	0	0
Tennessee	0	0	0	0
Virginia	24	24	24	24
West Virginia	1	1	1	1
Totals	65	65	65	65

(1) In Delaware, Kentucky and Maryland, there are no observations.

State	Number of Observations	Number of Observations Less Than 100	Number of Observations Less Than 100 Less Than 100	Number of Observations Less Than 100 Less Than 100
Georgia	13	13	13	13
Kentucky	0	0	0	0
Maryland	25	25	25	25
Delaware	0	0	0	0
North Carolina	2	2	2	2
South Carolina	0	0	0	0
Tennessee	0	0	0	0
Virginia	24	24	24	24
West Virginia	1	1	1	1
Totals	65	65	65	65

(1) Up to 1957 incl. (2) In Kentucky, 1958 work was all lumped under 1957 and 1958.
(3) Includes value of cultivated vines destroyed in 1957 and 1958.

PERSONNEL

The following technical, supervisory and clerical personnel were under appointment in the calendar year of 1937

Georgia

W. V. Zimmer	State Leader	- Originally appointed May 1933
Carl J. Brookshire	- Agent	- Appointed August 1935
T. M. Corn	"	" August 22, 1935

Maryland

H. E. Yost	- State Leader	" September 1933
Daniel W. Norris	- Employed on L. A.	April 16, 1937
	Terminated	May 1, 1936
E. R. Porter	Agent	Appointed March 5, 1937
		Furloughed October 31, 1937

North Carolina

H. B. Teague	- State Leader	Appointed November 1934
Oscar V. Coulter	Agent	" August 10, 1936
Mark M. Ferguson	"	" May 12, 1936
H. A. Whitman	"	" Feb. 10, 1936

Tennessee

R. Douglas Tanksley	State Leader	" Sept. 24, 1936
William C. Aiken	Agent	" Oct. 27, 1937
		Resigned Dec. 21, 1937
J. Wilburn Lane	"	Appointed May 25, 1936
Pete Stegall	"	" July 27, 1935
Otis E. Skiles	"	" May 17, 1937
Newton K. Vaughan	"	" March 5, 1937
		Resigned Oct. 15, 1937

Note: State Leaders first appointment is recorded above.

1940

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part is devoted to a detailed analysis of the economic situation in the country.

1941

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part is devoted to a detailed analysis of the economic situation in the country.

3. The third part is devoted to a detailed analysis of the social situation in the country.

1942

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part is devoted to a detailed analysis of the economic situation in the country.

3. The third part is devoted to a detailed analysis of the social situation in the country.

4. The fourth part is devoted to a detailed analysis of the political situation in the country.

5. The fifth part is devoted to a detailed analysis of the cultural situation in the country.

6. The sixth part is devoted to a detailed analysis of the scientific situation in the country.

7. The seventh part is devoted to a detailed analysis of the literary situation in the country.

8. The eighth part is devoted to a detailed analysis of the artistic situation in the country.

9. The ninth part is devoted to a detailed analysis of the sports situation in the country.

1943

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part is devoted to a detailed analysis of the economic situation in the country.

3. The third part is devoted to a detailed analysis of the social situation in the country.

4. The fourth part is devoted to a detailed analysis of the political situation in the country.

5. The fifth part is devoted to a detailed analysis of the cultural situation in the country.

6. The sixth part is devoted to a detailed analysis of the scientific situation in the country.

7. The seventh part is devoted to a detailed analysis of the literary situation in the country.

8. The eighth part is devoted to a detailed analysis of the artistic situation in the country.

9. The ninth part is devoted to a detailed analysis of the sports situation in the country.

PERSONNEL (continued)

Virginia

Richmond Office

Roy G. Pierce Pathologist

L. A. Placek Chief Clerk Appointed Aug. 16, 1935

Mrs. Minnie C. Hudgins - Jr. Clerk " Dec. 21, 1935

Charlottesville Office

J. G. Luce, Jr., State Leader Appointed May 21, 1934

Donald Campbell Agent " Aug. 10, 1936
Resigned June 30, 1937

G. C. Cramer " Appointed July 29, 1936

W. M. Early " " July 29, 1935

Richard E. Hopper " " Dec. 6, 1937

J. M. Swecker " " Aug. 8, 1936
Resigned June 9, 1937

West Virginia

Dr. J. M. Ashcroft State Leader Appointed May 1934

G. C. Hamilton Agent " Sept. 3, 1935

J. W. Kisella " " Sept. 5, 1936
Resigned March 15, 1937

Kermit McKeever " Appointed Sept. 5, 1936

A. E. McNeel " " Sept. 5, 1936

Ralph W. Welch " Began B. R. C. work in May 1934,
part time on State and part on Federal, since
that time last Federal appointment March 3, 1937

1. Introduction

2. Methodology

3. Results and Discussion

4. Conclusion

5. References

The purpose of this study is to investigate the effects of various factors on the performance of the system. The methodology employed in this study is a combination of experimental and analytical techniques. The results of the study are presented in the following sections.

6. Appendix

The data presented in this section are the results of the experiments conducted. The data are presented in a tabular format for clarity. The first column represents the input variable, the second column represents the output variable, and the third column represents the error. The data are presented for three different cases: Case 1, Case 2, and Case 3. The results show that the system performs well under all three cases, with the error being relatively small.

7. Acknowledgments

The authors would like to thank the following individuals for their contributions to this study: Dr. John Doe, Dr. Jane Smith, and Dr. Michael Brown. The authors would also like to thank the following organizations for their support: The National Science Foundation, The Department of Energy, and The Department of Defense.

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PERSONNEL DATA
SOUTHERN APPALACHIAN STATES
July 1, 1935 to December 31, 1937

Compiled and telephoned to Washington Jan. 8, 1938 in
reply to telegram from Dr. Martin dated January 7, 1937.

WORKERS PAID FROM WPA EMERGENCY FUNDS

	<u>Relief</u>	<u>Non-Relief</u>	<u>Total</u>
1935			
July	147	13	160
August	303	22	325
September	363	24	387
October	280	19	299
November	232	19	251
December	143	17	160
<u>Total</u>	<u>1468</u>	<u>114</u>	<u>1582</u>
1936			
January	113	14	127
February	119	15	134
March	155	17	172
April	210	18	228
May	328	23	351
June	441	23	464
July	426	24	450
August	483	36	519
September	524	29	553
October	467	31	498
November	409	28	437
December	352	23	375
<u>Total</u>	<u>4027</u>	<u>281</u>	<u>4308</u>
1937			
January	305	26	331
February	295	26	321
March	281	31	312
April	444	27	471
May	564	27	591
June	491	27	518
July	469	26	495
August	514	26	540
September	526	26	552
October	553	25	578
November	487	24	511
December	558	25	583
	<u>5487</u>	<u>316</u>	<u>5803</u>

RECAPITULATION OF ABOVE

	<u>Relief</u>	<u>Non-Relief</u>	<u>Total</u>
<u>Calendar Year</u>			
1935	1468	114	1582
1936	4027	281	4308
1937	5487	316	5803
<u>Totals</u>	<u>10982</u>	<u>711</u>	<u>11693</u>

* Average per mo. 36.73 23.7 390

*

Monthly figures for personnel are added together for the 30 months and divided by 30.

PERSONNEL DATA
SOUTHERN APPALACHIAN STATES
July 1, 1935 to December 31, 1937

Average number of persons paid from emergency appropriations July 1, 1935 to December 31, 1937 is 390. This figure was obtained by adding together monthly personnel figures for the 30-month period and dividing by 30.

Percentage of persons secured from relief rolls is 93.9%. This figure was obtained by taking total of all workers (11,693) and total relievers (10,982) - from recapitulation above - and getting percentage.

Note: - Above data compiled by Mr. Pierce from monthly progress reports for the Southern Appalachian States from July 1, 1935 to December 31, 1937, with the exception of data for October, 1935 and October, November, December 1936, and December 1937, which was taken direct from the vouchers (Payroll vouchers).

	<u>Man hours</u>	
Approp. 901089	356,791	7-16-35 to 8-15-36 Incl.
Approp. 201085	445,288	8-16-36 to 6-30-37 Incl.
Approp. 501082	316,786	7-1-37 to 12-31-37 Incl.
 Total	 1,118,865	

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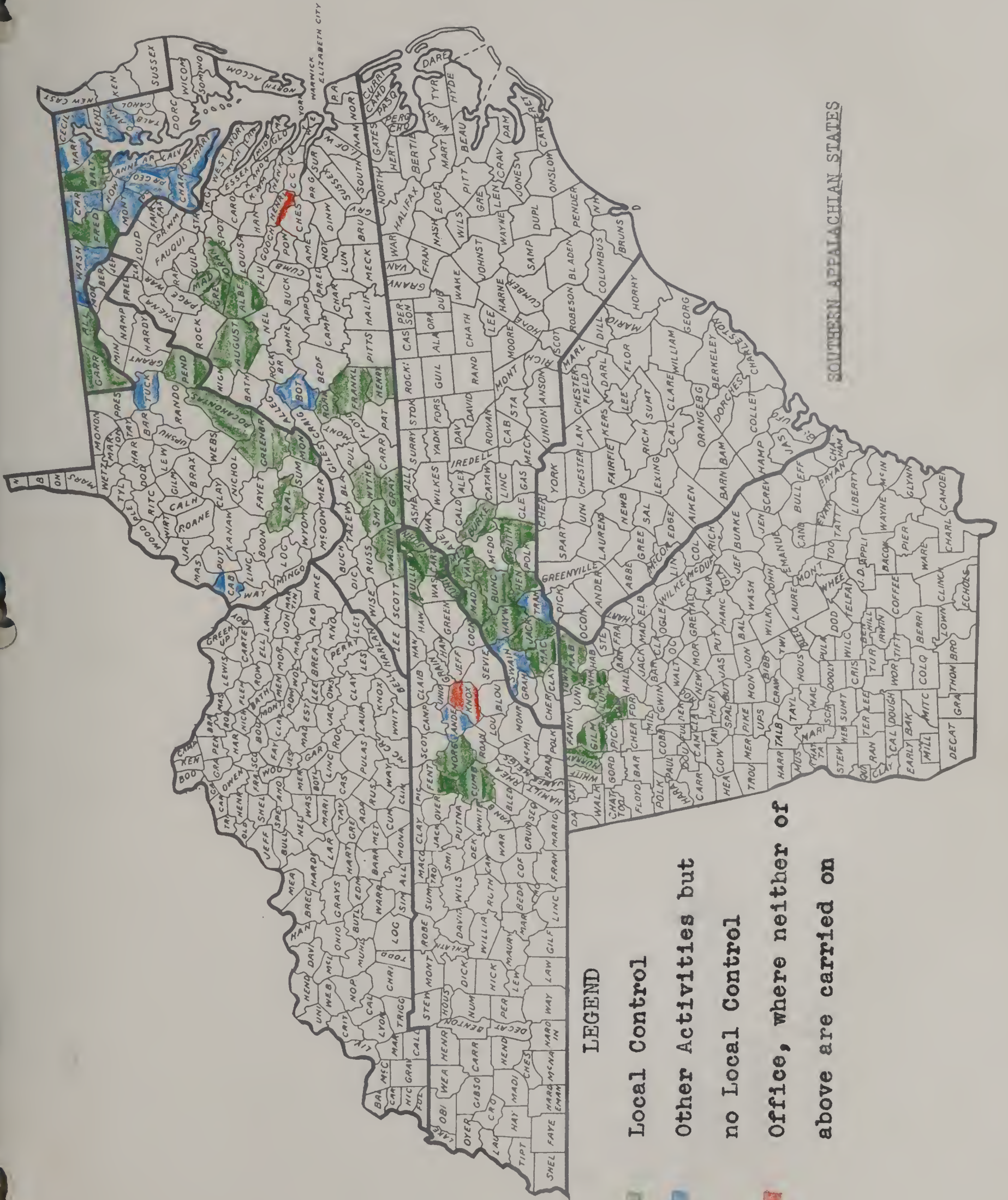
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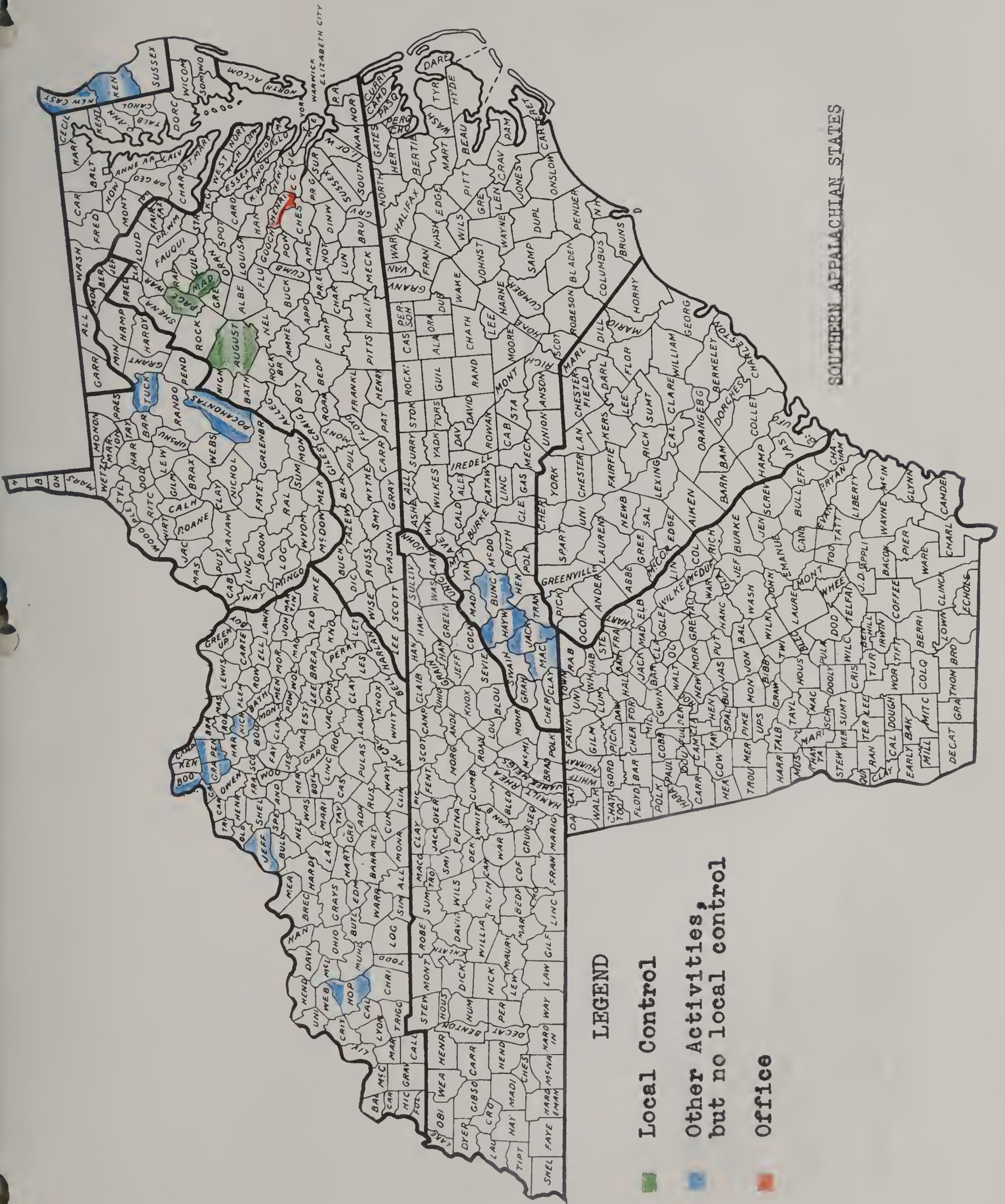
Location of Blister Rust Control Activities W. P. A. in 1937

9.2



Location of Blister Rust Control Activities Regular and Cooperative Funds in 1937

9.3



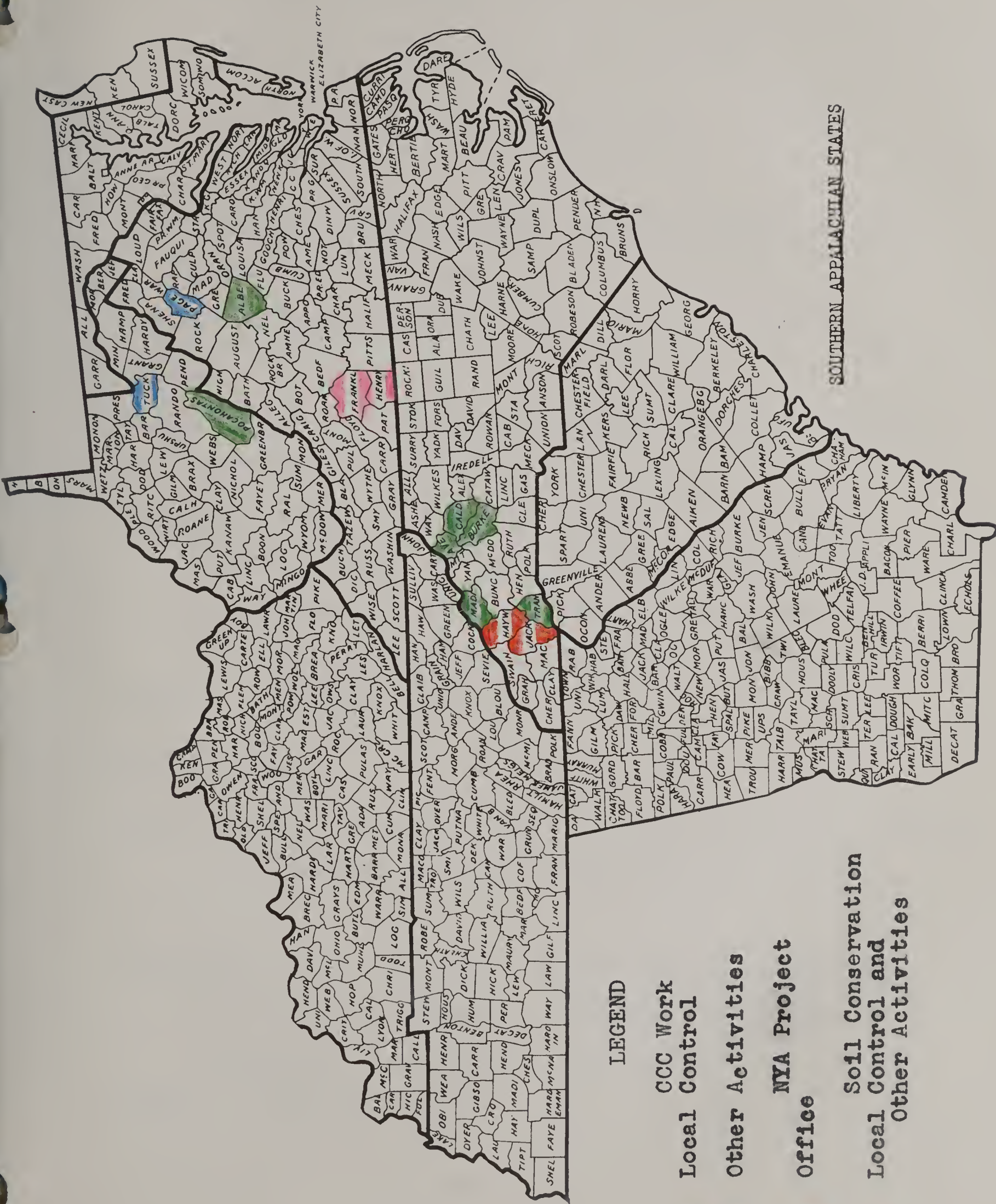
SOUTHERN APPALACHIAN STATES

LEGEND

- Local Control
- Other Activities, but no local control
- Office

Location of Blister Rust Control Activities CCC, SCS and NYA in 1937

9.4



Location of Blister Rust Control Work in
Southern Appalachian States in 1937
by Project, State, County and Activity

W. P. A. Project

GEORGIA

Local Control - Dawson, Gilmer, Lumpkin, Murray, Rabun,
Towns and White Counties

Office - Lumpkin County

MARYLAND

Local Control - Allegany, Baltimore, Frederick, Garrett
and Baltimore Counties

Other Activities - Allegany, Anne Arundel, Baltimore,
Carroll, Cecil, Charles, Frederick, Garrett, Harford,
Howard, Kent, Montgomery, Prince George, Queen Anne,
St. Marys and Washington Counties.

Office - Allegany County

NORTH CAROLINA

Local Control - Buncombe, Burke, Haywood, Henderson, Jackson,
Macon, Madison, Mitchell, Rutherford and Yancey
Counties.

Other Activities - Buncombe, Burke, Haywood, Henderson,
Jackson, Macon, Madison, Mitchell, Rutherford, Swain,
Transylvania and Yancey Counties.

Office - Buncombe County

THE UNIVERSITY OF CHICAGO

THE DIVISION OF THE PHYSICAL SCIENCES

DEPARTMENT OF CHEMISTRY

1955-56

Page 1

1. The first part of the report deals with the general

principles of the method.

2. The second part describes the

apparatus used.

3. The third part gives the results of the

experiments.

4. The fourth part discusses the

results in relation to the theory.

5. The fifth part contains the

conclusions.

6. The sixth part contains the

references.

7. The seventh part contains the

appendices.

8. The eighth part contains the

summary.

9. The ninth part contains the

acknowledgments.

10. The tenth part contains the

Location of Blister Rust Control Work in
Southern Appalachian States in 1937
by Project, State, County and Activity

W. P. A. Project

TENNESSEE

Local Control - Carter, Cumberland, Fentress, Johnson,
Morgan, Sullivan and Unicoi Counties.

Other Activities - Anderson, Carter, Cumberland, Fentress,
Johnson, Morgan, Sullivan, and Unicoi County.

Office - Knox County

VIRGINIA

Local Control - Albemarle, Augusta, Franklin, Grayson,
Greene, Henry, Madison, Orange, Roanoke, Smyth,
Washington and Wythe Counties

Other Activities - Albemarle, Augusta, Botetourt, Franklin,
Grayson, Henry, Orange, Smyth, Washington and
Wythe Counties

Office - Albemarle, Grayson, City of Richmond (Henrico Co.)

WEST VIRGINIA

Local Control - Greenbrier, Monroe, Pendleton, Pocahontas
and Raleigh Counties

Other Activities - Cabell, Greenbrier, Hardy, Monroe,
Pendleton, Pocahontas, Raleigh and Tucker Counties

Office Pocahontas County

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part contains a detailed account of the work done during the year.

3. The third part is a summary of the results of the work.

REPORT ON THE WORK OF THE COMMITTEE

The Committee has the honor to acknowledge the receipt of the report of the Secretary of the Society, dated the 1st of January, 1881.

The report contains a full and complete account of the work done during the year.

The Committee has the pleasure to inform you that the work of the Society has been carried on in accordance with the plan adopted at the last meeting.

The Committee has the honor to inform you that the work of the Society has been carried on in accordance with the plan adopted at the last meeting.

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REGULAR PROJECT
Including State and Local Cooperation

DELAWARE

Local Control - None

Other Activities - Newcastle and Kent Counties

KENTUCKY

Local Control - None

Other Activities - Incl. Survey and Nursery Sanitation
Boone, Grant, Hopkins, Jefferson, Nicholson and
Pendleton Counties

NORTH CAROLINA

Other Activities - Buncombe, Haywood, Henderson,
Jackson, Macon, Mitchell

Office - Buncombe and Mitchell Counties

VIRGINIA

Local Control - Augusta, Madison, and Page Counties

Office - City of Richmond (Henrico County)

WEST VIRGINIA

Other Activities - Pocahontas and Tucker Counties

RESETTLEMENT ADMINISTRATION PROJECT

MARYLAND

Local Control - Garrett County

SOIL CONSERVATION SERVICE

VIRGINIA

Local Control - Franklin and Henry Counties

Other Activities - Franklin and Henry Counties

C. C. C. PROJECT

NORTH CAROLINA

Local Control - Avery, Burke, Caldwell, Haywood,
Madison and Transylvania Counties

Other Activities - Avery, Burke, Caldwell, Madison
and Transylvania Counties

VIRGINIA

Local Control - Albemarle County

Other Activities - Albemarle and Page Counties

WEST VIRGINIA

Local Control - Pocahontas County

Other Activities - Nursery Sanitation - Tucker County

NYA PROJECT

NORTH CAROLINA

Office - Haywood and Jackson Counties

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BLISTER RUST CONTROL
EXPENDITURES

EXPENDITURES

During the Calendar Year 1937, expenditures handled by our Division were made from various appropriations.

Under the Regular Appropriation to the Department there			
was allotted July 1, 1936	\$5,125.00	Expended during	\$2,002.45
		Calendar Year	
and on July 1, 1937		" "	3,067.67
		Total	\$ 5,070.12

Under the W. P. A. three allotments were made for which there were expenditures in calendar year 1937.

1. Appropriation 001089; the first allotment made available July 1, 1935; this was decreased several times until by October 31, 1937 total allotments were \$150,289.00. Of this \$150,125.98 were expended or encumbered from July 1935 to December 31, 1937, leaving unencumbered balance \$163.02. Of this appropriation only \$2,224.39 was expended in calendar year 1937. For details see accompanying sheets pages 11 to 30.

2. Appropriation 201085; the first allotment was made in August 1936, and increases were made from time to time bringing the total allotment up to \$182,866.00, on February 15, 1938. Of this appropriation \$181,961.14 were expended or encumbered up to February 15, 1938, leaving an unencumbered balance of \$904.86. During calendar 1937 there was expended in the region \$100,060.87. For details as to expenditures see accompanying pages 31 to 48.

3. Appropriation 501082. The allotment of \$128,400.00 from this appropriation was made available July 1, 1937 and was not increased until after January 1, 1938. At present (May 24, 1938) this allotment has been increased to \$215,080.00.

By December 31, 1937; there had been expended and encumbered \$121,601.12 leaving an unencumbered balance with the Treasury January 1, 1938 of \$6,798.88. Details of expenditures by States, similar to those for appropriations 001089 and 201085 have not yet been worked up. A statement giving accumulative obligations up to and including December 31, 1937 has been prepared and is given on page 49.1.

3. Appropriation 501009 for Administrative purposes for Richmond Office. The first allotment was made available in July 1937 to the amount of \$2,800. There have been expended or encumbered up to December 31, 1937 \$2,770.59 leaving an unencumbered balance with the Treasury of \$29.41. Since the summary of expenditures from this allotment can be summed up in a few lines I am giving them here rather than on a separate page.

Allotment 501009

Accumulative Obligations up to and Including Dec. 31, 1937.

Allotment	\$2,800.00
Salaries - Non-Relief - Appointees	1,576.63
Supplies, Material and Equipment	345.08
All Other Expenses	846.55
Total Other than Salaries	1,191.63
Total Obligations	2,768.26
Book balance unobligated	31.74
Total of vouchers passed for payment - encumbrances liquidated	2,544.92
Total unliquidated encumbrances	225.67
Total payment and encumbrances	2,770.59
Unencumbered balance with Treasury	29.41

Summary of Expenditures for Blister Rust Control by Federal Government
Classified by Appropriation and States for Calendar Year 1937

Approp. Number	Georgia	Maryland	North Carolina	Tennessee	Virginia	Richmond Office	Total Virginia	West Virginia	Total All States
.001089	\$ 92.79	\$ 758.92	\$ 454.00	\$ 414.29	\$ 150.21	\$ -	\$ 150.21	\$ 354.18	\$ 2,224.39
201085	9,585.78	6,893.50	22066.46	12,517.76	19,251.92	3,210.92	22,462.84	26,534.53	100,060.87
501082	13,076.09	10,282.50	21023.58	22,597.89	not separated		24,917.49	29,289.30	121,186.85
501009						2,788.70	2,788.70	2,788.70	2,788.70
Total WPA	\$22,754.66	\$17,934.92	\$43,544.04	\$35,529.94	\$ not computable		\$50,319.24	\$58,966.71	\$226,360.81 ⁽¹⁾

(1) This amount \$226,360.81 exceeds amount of W.P.A expenditures \$224,641.30 reported in Omnibus Statistical Table IV by \$1721.51, but difference is made up largely of moneys encumbered in Richmond Office but not actually paid.

STATEMENT GIVING ACCUMULATIVE OBLIGATIONS UP TO AND INCLUDING DECEMBER 31, 1937

State and Proj. No.	ON WPA ALLOTMENTS FOR BLISTER RUST													
	(1) Allotment	(2) Relief	(3) Appt.	(4) Other	(5) Total Salaries	(6) Supplies Materials and Equipment	(7) All Other Expenses	(8) Total Other Than Salaries	(9) Total Obli- gations	(10) Book Balance (Unobli- gated)	(11) Total of Vouchers Passed for Payment - Encumbrances Liquidated	(12) Total Unliquidated Encumbrances	(13) Total Payments and Encumbrances	(14) Unencumbered Balance With Treasury
	501-2-108													
7-19	13,960.00	7529.57	2919.96		10449.53	1597.66	1028.90	2626.56	13076.09	883.91	11306.30	1779.69	13085.99	874.01
7-24	10,300.00	7089.83	1839.96		8929.79	305.57	1047.14	1352.71	10282.50	17.50	9399.08	885.62	10284.70	15.30
7-31	22,340.00	13155.15	3797.46		16952.61	2291.16	1779.81	4070.97	21023.58	1316.42	17898.02	3160.50	21058.52	1281.48
7-36	25,800.00	14560.62	4486.96		19047.58	2525.77	1024.54	3550.31	22597.89	3202.11	19897.03	2835.53	22732.56	3067.44
7-38	26,100.00	14959.16	3842.46	188.36	18989.98	3667.12	2260.39	5927.51	24917.49	1182.51	20941.25	3976.24	24917.49	1182.51
7-40	29,900.00	21552.74	4541.63		26094.37	1969.39	1225.54	3194.93	29289.30	610.70	24410.66	5111.20	29521.86	378.14
TOTAL	128,400.00	78847.07	21428.43	188.36	100463.86	12356.67	8366.32	20722.99	121,186.85	7213.15	103,852.34	17,748.78	121,601.12	6,798.88

State and Proj. No.	(1) Allotment	(2) Relief	(3) Appt.	(4) Other	(5) Total Salaries
201-3-108					
7-19	13,260.00	753.27	3213.36		10446.63
7-24	10,200.00	708.23	1832.66		8832.79
7-27	22,340.00	12122.12	2707.46		16869.61
7-28	22,800.00	1460.62	4466.36		10047.28
7-38	26,100.00	14222.16	2842.46	188.26	18282.68
7-40	22,800.00	21222.74	4247.62		26034.27
TOTAL	128,400.00	78847.07	21428.42	188.26	100462.36

STATEMENT OF EXPENDITURES BY CALENDAR YEARS

Appropriation 001089

State	7/1 to 12/31 1935	1/1 to 6/30 1936	7/1 to 12/31 1936	Total Year 1936	1/1 to 6/30 1937	Total Appropriation 001089
Georgia	\$ 7,610.49	\$ 9,195.37	\$ 3,374.30	\$12,569.67	\$ 92.79	\$ 20,272.95
Maryland	7,196.69	8,468.86	4,968.79	13,437.65	758.92	21,393.26
North Carolina	15,296.45	11,370.64	6,837.58	18,208.22	454.00	33,958.67
South Carolina	1,876.91					1,876.91
Tennessee	4,023.56	5,906.50	5,575.62	11,482.12	414.29	15,919.97
Virginia	11,584.17	11,719.06	4,736.68	16,455.74	150.21	28,190.12
Richmond	2,283.33	2,291.73	533.80	2,825.53		5,108.86
West Virginia	6,922.90	10,709.75	5,418.41	16,128.16	354.18	23,405.23
Totals	\$56,794.50	\$59,661.91	\$31,445.18	\$91,107.09	\$2,224.39	\$150,125.98

STATEMENT OF EXPENDITURES BY FISCAL YEARS 1935-1937

Appropriation 001089

State	7/1 to 12/31 1935	1/1 to 6/20 1936	Total Fiscal Year 1936	7/1 to 12/31 1936	1/1 to 6/30 1937	Total Fiscal Year 1937	Total Appropriation 001089
Georgia	\$ 7,610.49	\$ 9,195.37	\$ 16,805.86	\$ 3,374.30	\$ 92.79	\$ 3,467.09	\$ 20,272.95
Maryland	7,196.69	8,468.86	15,665.55	4,968.79	758.92	5,727.71	21,393.26
No. Carolina	15,296.45	11,370.64	26,667.09	6,837.58	454.00	7,291.58	33,958.67
So. Carolina	1,876.91		1,876.91				1,876.91
Tennessee	4,023.56	5,906.50	9,930.06	5,575.62	414.29	5,989.91	15,919.97
Virginia	11,584.17	11,719.06	23,303.23	4,736.68	150.21	4,886.89	28,190.12
Richmond	2,283.33	2,291.73	4,575.06	533.80		533.80	5,108.86
West Virginia	6,922.90	10,709.75	17,632.65	5,418.41	354.18	5,772.59	23,405.24
Total	\$56,794.50	\$59,661.91	\$116,456.41	\$31,445.18	\$2,224.39	\$33,669.57	\$150,125.98

Statement of Expenditures by Classification
For Southern Appalachian States
Appropriation 001089

13

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	10,455.31	12,190.33	4,226.65	
Non Relief	1,201.05	2,273.02	1,904.72	
Relief	32,879.97	33,866.44	16,008.99	
Per Diem	2,085.42	1,880.51	759.20	129.10
Mileage	6,573.27	5,604.32	3,550.58	527.31
Rental - Equip.	228.91	693.11	362.75	15.00
Rental-Buildings	270.75	359.88	187.94	
Trans. Requests	29.08	172.81	81.71	
Gas and Oil	76.37	533.58	1,068.96	784.36
Repairs - Parts	24.27	40.45	687.57	262.37
Repairs - Labor	31.50	57.15	232.70	88.03
Trans. of Laborers	463.54	130.00	205.00	76.00
Telegraph	170.63	172.14	156.56	47.48
Telephone	267.80	347.40	181.40	12.43
Supplies	134.21	278.03	406.50	33.05
Equipment	1,877.71	984.40	1,369.04	227.85
Freight and Express	2.52		1.72	
Storage	16.00	55.30	28.70	17.26
Miscellaneous	2.00	19.15	10.69	4.15
Repairs to Government car	4.19	4.89	7.80	
Totals	56,794.50	59,661.91	31,445.18	2,224.39
GRAND TOTAL	\$150,125.98			
	163.02	Unencumbered Balance		
	\$150,280.00	Appropriation		

Statement of Expenditures by Classification
For Southern Appalachian States

14

Appropriation 001089

	Total	Per Cent
Appointees	\$26,872.29	18.
Non Relief	5,378.79	3.58
Relief	82,755.40	55.
Per Diem	4,854.23	3.23
Mileage	16,254.48	10.85
Rental - Equipment	1,299.77	.9
Rental - Buildings	818.57	.5
Trans. Requests	289.60	.2
Gas and Oil	2,463.27	1.6
Repairs - Parts	1,014.66	.7
Repairs - Labor	409.38	.3
Trans. of Laborers	874.54	.6
Telegraph	546.81	.4
Telephone	809.03	.53
Supplies	851.79	.5
Equipment	4,459.00	2.9
Freight and Express	4.24	.002
Storage	117.26	.078
Miscellaneous	35.99	.02
Repairs to Government Car	16.88	.01
Totals	<u>\$150,125.98</u>	<u>100.00</u>
GRAND TOTAL	\$150,125.98	
	163.02	Unencumbered Balance
	<u>\$150,289.00</u>	Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF GEORGIA

Georgia (Appropriation 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$1,669.00	2,160.00	510.00	
Non Relief	184.80	210.00	57.00	
Relief	3,204.77	4,649.41	1,781.26	
Per Diem	356.02	242.24	66.13	
Mileage	1,587.98	1,512.40	516.55	
Trans. Requests		25.90	2.15	
Rent Bldgs.	36.00	48.00	32.00	
Rent - Equip.	13.50	18.00	12.00	
Gas and Oil	20.69	173.59	57.08	60.83
Repairs - Parts		5.80	108.02	18.46
Repairs - Labor		4.95	49.05	13.50
Telegraph	3.00	5.27		
Telephone	11.01	30.21	19.32	
Supplies	23.96	61.27	122.34	
Equipment	499.76	37.43	40.50	
Miscellaneous		10.90	.90	

Totals	\$7,610.49	\$9195.37	\$3,374.30	\$92.79
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GRAND TOTAL \$20,272.95

17.05 Unencumbered Balance
\$20,290.00 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF GEORGIA

Georgia (Appropriation 001089)

	Total	Per Cent
Appointees	\$4339.00	21.4
Non Relief	451.80	2.2
Relief	9635.44	47.5
Per Diem	664.39	3.3
Mileage	3616.93	17.8
Trans. Requests	28.05	.1
Rental Buildings	116.00	.5
Rental - Equipment	43.50	.2
Gas and Oil	312.19	1.9
Repairs - Parts	132.28	.6
Repairs - Labor	67.50	.3
Telegraph	8.27	.04
Telephone	60.54	.3
Supplies	47.09	.2
Equipment	738.17	3.6
Miscellaneous	11.80	.06
	\$20,272.95	100.00

STATEMENT OF EXPENDITURES BY CLASSIFICATION

Maryland (Appropriation 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$1,579.50	1,318.50	860.00	
Non Relief		1,628.24	1217.73	
Relief	4,445.00	4,180.15	1897.15	
Per Diem	163.42	325.10	131.24	129.10
Mileage	715.90	770.89	725.64	527.31
Trans. Requests	16.13	10.49	16.10	
Rental - Equip.			16.80	
Gas and Oil	30.07	26.23	51.21	55.86
Repairs - Parts	21.77	6.20	8.95	2.40
Repairs - Labor	28.50	3.80		
Trans. of Laborers	101.30			
Telegraph	3.89	8.30	7.83	3.70
Telephone	4.80	23.64	12.95	4.65
Supplies	2.10	68.05	3.60	2.35
Equipment	84.31	91.77	18.34	29.40
Miscellaneous			1.25	4.15
Storage		7.50		
	<hr/>	<hr/>	<hr/>	<hr/>
	\$7196.69	\$8468.86	\$4968.79	\$758.92
GRAND TOTAL	\$21,393.26			
	<u>.24</u>	Unencumbered Balance		
	\$21,393.50	Appropriation		

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF MARYLAND

	Total	Per Cent
Appointees	\$ 3,758.00	17.6
Non Relief	2,845.97	13.3
Relief	10,522.30	49.2
Per Diem	748.86	3.5
Mileage	2,739.74	12.9
Trans. Requests	42.72	.2
Rent - Equipment	16.80	.07
Gas and Oil	163.37	.76
Repairs - Parts	39.32	.18
Repairs - Labor	32.30	.15
Trans. of Laborers	101.30	.47
Telegraph	23.72	.1
Telephone	46.04	.22
Supplies	76.10	.3
Equipment	223.82	1.
Miscellaneous	5.40	.02
Storage	7.50	.03
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Totals	\$21,393.26	100.00

STATEMENT OF EXPENDITURES BY CLASSIFICATION

North Carolina (Appropriation 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$1707.50	2,212.83	655.00	
Non Relief	954.10	382.80	78.47	
Relief	10474.44	6,331.95	3785.43	
Per Diem	454.77	269.35	255.67	
Mileage	1144.85	816.31	987.42	
Trans. Requests	1.65	37.21	20.85	
Rent - Equip.	201.91	469.95	139.95	10.00
Gas and Oil		59.84	205.87	364.70
Repairs - Parts			232.31	17.23
Repairs - Labor			90.05	10.65
Trans. of Laborers	205.11			
Telegraph	34.87	29.78	55.99	9.77
Telephone	105.55	100.32	71.83	7.78
Supplies	9.70	43.73	58.26	4.16
Equipment		595.27	192.98	14.70
Miscellaneous	2.00	1.50	7.50	
Storage		19.80		15.01
Totals	\$15,296.45	\$11,370.64	\$6837.58	\$454.00

GRAND TOTAL

\$33,958.67

30.83

Unencumbered Balance
 \$33,989.50 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF NORTH CAROLINA

Appropriation 001089

	Total	Per Cent
Appointees	\$ 4,575.33	13.47
Non Relief	1,415.37	4.17
Relief	20,591.82	60.63
Per Diem	979.79	2.89
Mileage	2,948.58	8.68
Trans. Requests	59.71	.17
Rental - Equipment	828.81	2.42
Gas and Oil	630.41	1.89
Repairs - Parts	249.54	.74
Repairs - Labor	100.70	.29
Trans. of Laborers	205.11	.6
Telegraph	130.41	.38
Telephone	285.48	.84
Supplies	115.85	.34
Equipment	802.95	2.36
Miscellaneous	11.00	.03
Storage	34.81	.1
Totals	<hr/> \$33,958.67	<hr/> 100.00

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STATEMENT OF EXPENDITURES BY CLASSIFICATION

SOUTH CAROLINA (Appropriation 001089)

7/1 to
12/31/35

Appointees	\$480.00
Non Relief	25.00
Relief	857.10
Travel - Per Diem	100.50
Travel - Mileage	402.40
Rental - Equipment	10.50
Transportation Requests	1.41

\$1,876.91

GRAND TOTAL \$1,876.91

40.09 Unencumbered Balance

\$ 1,917.00

TENNESSEE

(APPROPRIATION 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$ 846.66	1,513.50	1,149.00	
Relief	1,923.80	3,021.91	2,859.07	
Per Diem	234.45	271.30	65.22	
Mileage	958.15	472.57	426.85	
Trans. Requests	6.30	52.98	6.65	
Rent - Equip.		184.16	180.00	5.00
Gas and Oil	13.04	72.49	231.11	155.93
Repairs - Parts	2.50	20.25	88.94	61.43
Repairs - Labor	3.00	44.00	62.25	44.25
Trans. of Laborers	7.50	130.00	205.00	76.00
Telegraph	16.06	25.71	35.80	28.78
Telephone	3.45	8.30	1.15	
Supplies	1.85	16.68	31.66	3.90
Equipment	6.80	69.90	220.46	36.75
Express			1.72	
Miscellaneous		.75	1.04	
Storage		2.00	18.70	2.25

\$4,023.56

\$5,906.50

\$5,575.62

\$414.29

GRAND TOTAL \$15,919.97

19.03 Unencumbered Balance

\$ 15,939.00 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF TENNESSEE

Appropriation 001089

	Total	Per Cent
Appointees	\$ 3,500.16	20.
Relief	7,804.78	49.
Per Diem	507.97	3.
Mileage	1,857.57	11.
Trans. Requests	65.93	.4
Rental - Equipment	364.16	2.2
Gas and Oil	472.57	2.
Repairs - Parts	173.12	1.
Repairs - Labor	153.50	1.
Trans. of Laborers	418.50	2.
Telegraph	106.35	6.
Telephone	12.90	.07
Supplies	50.19	.31
Equipment	333.91	2.
Express	1.72	.01
Miscellaneous	1.79	.01
Storage	22.95	.1

Totals

\$15,919.97

100.0 0

STATEMENT OF EXPENDITURES BY CLASSIFICATION

RICHMOND, VIRGINIA (APPROPRIATION 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	6/30 to 12/31/36
Appointees	675.00	375.00	
Relief	579.30	1258.00	203.85
Rental - Bldgs.	234.75	311.88	155.94
Rental - Equip.	3.00	21.00	6.00
Repairs to Gov.Car	4.19	4.89	7.80
Gas and Oil			23.23
Telegraph	88.47	71.51	29.42
Telephone	102.04	97.00	14.20
Supplies	54.33	38.65	41.25
Equipment	523.73	82.30	42.11
Freight	2.52		
Storage	16.00	26.00	10.00
Miscellaneous		5.50	
Totals	<u>2283.33</u>	<u>2291.73</u>	<u>533.80</u>

GRAND TOTAL \$5,108.86

4.59 Unencumbered Balance
\$5,113.45 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR RICHMOND

	Total	Per Cent.
Appointees	\$1,050.00	20.5
Relief	2,041.15	39.
Rental - Equip.	30.00	.6
Rental. Bldgs.	702.57	15.7
Gas and Oil	23.23	.5
Repairs	16.88	.3
Telegraph	189.40	3.7
Telephone	213.24	4.1
Supplies	134.23	2.7
Equipment	648.14	12.66
Miscellaneous	5.50	.1
Freight	2.52	.04
Storage	52.00	.1
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Totals	\$5,108.86	100.00

STATEMENT OF EXPENDITURES BY CLASSIFICATION

VIRGINIA (APPROPRIATION 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$ 1,961.52	2,762.20	461.66	
Non Relief	37.15	51.98		
Relief	6,666.74	6,930.62	2,810.69	
Per Diem	694.51	647.62	110.34	
Mileage	1,266.05	951.46	118.68	
Trans. Requests	3.59	19.79	41.96	
Rental - Equip,			8.00	
Gas and Oil	12.57	153.71	296.63	93.48
Repairs - Parts		5.05	173.55	14.61
Repairs - Labor		1.25	17.75	14.25
Trans. of Laborers	149.63			
Telegraph	21.47	31.07	25.65	5.23
Telephone	40.05	87.93	61.95	
Supplies	41.42	46.00	62.63	22.64
Equipment	689.47	30.38	547.19	
Totals	\$11,584.17	\$11,719.06	\$4,736.68	\$150.21

GRAND TOTAL \$28,190.12
9.43 Unencumbered Balance
 \$28,199.55 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION FOR
STATE OF VIRGINIA

	Total	Per Cent
Appointees	\$ 5,185.38	18.4
Non Relief	89.13	.3
Relief	16,408.05	58.2
Per Diem	1,452.47	5.2
Mileage	2,336.19	8.3
Trans. Requests	65.34	.2
Rental - Equip. ¹ / ₂	8.00	.02
Gas and Oil	556.39	2.
Repairs - Parts	193.21	.68
Repairs - Labor	33.25	.1
Trans. of Laborers	149.63	.5
Telegraph	83.42	.3
Telephone	189.93	.7
Supplies	172.69	.6
Equipment	1,267.04	4.5
 Totals	 <hr/> \$28,190.12	 <hr/> 100.00

STATEMENT OF EXPENDITURES BY CLASSIFICATION

WEST VIRGINIA

(APPROPRIATION 001089)

	7/1 to 12/31/35	1/1 to 6/30/36	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$1,536.13	1,848.30	599.99	
Mon Relief			551.52	
Relief	4,728.82	7,494.40	2671.54	
Per Diem	81.75	124.90	130.60	
Mileage	497.94	1,079.69	755.44	
Trans. Requests		26.44		
Gas and Oil		47.72	203.83	53.56
Repairs - Parts		3.15	75.80	148.24
Repairs - Labor		3.15	13.60	5.38
Telegraph	2.87	.50	1.87	
Telephone	.90			
Supplies	.85	3.65	86.76	
Equipment	73.64	77.35	307.46	147.00
Miscellaneous		.50		

Totals	6,922.90	10,709.75	5,418.41	354.18
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GRAND TOTAL	\$23,405.24	
	<u>41.76</u>	Unencumbered Balance
	\$23,447.00	Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF WEST VIRGINIA

Appropriation 001089

	Total	Per Cent
Appointees	\$ 3,984.42	17.013
Non Relief	551.52	2.455
Relief	14,894.76	63.776
Per Diem	337.25	1.013
Mileage	2,353.07	10.053
Trans. Requests	26.44	.112
Gas and Oil	305.11	1.303
Repairs - Parts	227.19	1.
Repairs - Labor	22.13	.09
Telegraph	5.24	.02
Telephone	.90	.003
Supplies	91.26	.48
Equipment	605.45	2.68
Miscellaneous	.50	.002
 Totals	 \$23,405.24	 100.00

STATEMENT OF EXPENDITURES BY CALENDAR YEARS

APPROPRIATION 201085

State	7/1 to 12/31/36	1/1 to 6/30/37	7/1 to 12/31/37	Total Year 1937	Total Appropriation 201085
Georgia	\$7,178.45	\$9,585.78		\$9,585.78	\$ 16,765.23
Maryland	2,928.25	6,893.50		6,893.50	9,821.75
North Carolina	33,820.96	22,066.46		22,066.46	55,887.42
Tennessee	5,559.76	12,488.26	29.50	12,517.76	18,077.52
Richmond, Virginia	1,833.58	3,210.92		3,210.92	5,044.50
Virginia	14,698.69	19,251.92		19,251.92	33,950.61
West Virginia	15,880.58	26,534.53		26,534.53	42,415.11
Total	\$81,900.27	\$100,031.37	29.50	\$100,060.87	\$181,961.14

STATEMENT OF EXPENDITURES BY FISCAL YEARS

APPROPRIATION 201085

State	7/1 to 12/31/36	1/1 to 6/30/37	Total Fiscal Year 1937	7/1 to 12/31 1937	Total Fiscal Year 1938	Total Appropriation 201085
Georgia	\$ 7,178.45	\$ 9,585.78	\$ 16,764.23			\$ 16,764.23
Maryland	2,928.25	6,893.50	9,821.75			9,821.75
North Carolina	33,820.96	22,066.46	55,887.42			55,887.42
Tennessee	5,559.76	12,488.26	18,048.02	29.50	29.50	18,077.52
Richmond, Va.	1,833.58	3,210.92	5,044.50			5,044.50
Virginia	14,698.69	19,251.92	33,950.61			33,950.61
West Virginia	15,880.58	26,534.53	42,415.11			42,415.11
Total	\$81,900.27	\$100,031.37	\$181,931.64	29.50	29.50	\$181,961.14

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR SOUTHERN APPALACHIAN STATES

Appropriation 201085

	7/1 to 12/31/36	1/1/to 6/30/37	7/1 to 12/31/37
Appointees	\$14,205.83	\$ 22,500.51	
Non Relief	1,861.83	665.18	
Relief	57,069.20	65,387.70	
Per Diem	1,371.32	1,248.62	
Mileage	2,869.23	3,931.14	
Rental - Buildings	174.44	453.32	
Rental - Equipment	430.94	356.97	
Trans. Requests	124.55	293.77	
Trans. of Laborers	132.00		
Gas and Oil	1,310.05	1,849.30	
Repairs - Parts	1,050.19	933.19	29.50
Repairs - Labor	332.05	741.35	
Telegraph	126.81	209.05	
Telephone	167.50	294.10	
Supplies	434.55	666.97	
Equipment	148.68	390.31	
Miscellaneous	25.59	23.04	
Freight and Express	6.30	19.67	
Storage	<u>59.21</u>	<u>67.18</u>	
	\$81,900.27	\$100,031.37	29.50

GRAND TOTAL \$181,961.14

904.86. Unencumbered Balance
\$182,866.00 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR SOUTHERN APPALACHIAN STATES

Appropriation 201085

	Total	Per Cent
Appointees	\$ 36,706.34	20.2
Non Relief	2,527.01	1.38
Relief	122,456.90	67.29
Per Diem	2,619.94	1.43
Mileage	6,800.37	3.73
Rental - Buildings	627.76	.34
Rental - Equipment	787.91	.43
Transportation Requests	418.32	.23
Transportation of Laborers	132.00	.07
Gas and Oil	3,159.35	1.71
Repairs - Parts	2,012.88	1.10
Repairs - Labor	1,073.40	.58
Telegraph	335.86	.18
Telephone	461.60	.25
Supplies	1,101.52	.7
Equipment	538.99	.29
Miscellaneous	48.63	.02
Freight and Express	25.97	.01
Storage	<u>126.39</u>	<u>.06</u>
	\$181,961.14	100.00

STATEMENT OF EXPENDITURES BY CLASSIFICATION
FOR STATE OF GEORGIA

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$2,253.33	\$2,919.96
Non Relief	61.38	
Relief	3,907.56	5,488.96
Per Diem	157.06	239.47
Mileage	273.73	471.90
Rental - Buildings	16.00	48.00
Rental - Equipment	6.00	18.00
Transportation Requests	3.03	35.52
Gas and Oil	302.83	240.09
Repairs - Parts	92.32	19.24
Repairs - Labor	68.05	14.85
Telegraph	1.82	3.51
Telephone	10.65	31.90
Supplies	19.63	26.80
Equipment		25.68
Miscellaneous	3.95	1.90
Freight and Express	1111	
	<hr/>	<hr/>
	\$7,178.45	\$9,585.78

GRAND TOTAL \$16,764.23

55.77 Unencumbered Balance
\$16,820.00 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION

Georgia

Appropriation 201085

	Total	Per Cent
Appointees	\$ 5,173.29	30.85
Non Relief	61.38	.4
Relief	9,396.52	56.05
Per Diem	396.53	2.4
Mileage	745.63	4.43
Rental - Buildings	64.00	.4
Rental - Equipment	24.00	.1
Transportation Requests	38.55	.2
Gas and Oil	542.92	3.2
Repairs - Parts	111.56	.7
Repairs - Labor	82.90	.5
Telegraph	5.33	.03
Telephone	42.55	.2
Supplies	46.43	.3
Equipment	25.68	.2
Miscellaneous	5.85	.034
Freight and Express	1.11	.006
	<hr/>	<hr/>
	\$16,764.23	100.00

STATEMENT OF EXPENDITURES BY CLASSIFICATION

For State of Maryland

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$ 752.95	\$1,981.23
Non Relief	66.00	
Relief	2,064.48	4,830.44
Per Diem	28.13	25.50
Mileage		27.45
Transportation Requests	5.75	22.20
Gas and Oil	8.77	4.88
Repairs - Parts	.50	
Telephone		1.45
Supplies	.67	
Miscellaneous		.35
Storage	1.00	
	<hr/>	<hr/>
	\$2,928.25	\$6,893.50

GRAND TOTAL \$9,821.75

74.25 Unencumbered Balance

\$9,896.00 Appropriation

Statement of Expenditures by Classification
For State of Maryland

	Total	Per Cent
Appointees	\$2,734.18	27.84
Non Relief	66.00	.67
Relief	6,894.92	70.2
Per Diem	53.63	.55
Mileage	27.45	.28
Transportation Requests	27.95	.28
Gas and Oil	13.65	.14
Repairs - Parts	50.00	.005
Telephone	1.45	.014
Supplies	.67	.007
Miscellaneous	.35	.004
Storage	1.00	.01
	<hr/> \$9,821.75	<hr/> 100.00

THE HISTORY OF THE REIGN OF CHARLES THE FIRST

1625	1626	1627
1628	1629	1630
1631	1632	1633
1634	1635	1636
1637	1638	1639
1640	1641	1642
1643	1644	1645
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1685	1686	1687
1688	1689	1690
1691	1692	1693
1694	1695	1696
1697	1698	1699
1700	1701	1702

THE HISTORY OF THE
 REIGN OF
 CHARLES THE FIRST

STATEMENT OF EXPENDITURES BY CLASSIFICATION

For State of North Carolina

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$ 3,475.59	\$ 3,787.19
Non Relief	928.96	241.92
Relief	26,535.33	15,732.64
Per Diem	319.82	176.02
Mileage	1,000.71	1,131.82
Transportation Requests	62.60	86.55
Rental - Equipment	285.94	50.00
Gas and Oil	554.34	366.45
Repairs - Parts	448.96	143.40
Repairs - Labor	43.85	166.67
Telegraph	16.95	32.11
Telephone	61.75	56.60
Supplies	7.96	27.29
Equipment	56.43	16.15
Miscellaneous	3.31	10.80
Storage	18.46	37.18
Freight and Express		3.67

 \$33,820.96

 \$22,066.46

GRAND TOTAL \$55,887.42

43.58	Unencumbered Balance
\$55,931.00	Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION

For State of North Carolina

Appropriation 201085

	Total	Per Cent
Appointees	\$ 7,262.78	12.9
Non Relief	1,170.88	2.09
Relief	42,267.97	75.63
Per Diem	495.84	.8
Mileage	2,132.53	3.82
Transportation Requests	149.15	.266
Rental - Equipment	335.94	.6
Gas and Oil	920.79	1.6
Repairs - Parts	592.36	1.5
Repairs - Labor	210.52	.3
Telegraph	49.06	.008
Telephone	118.35	.21
Supplies	35.25	.06
Equipment	72.58	.1
Miscellaneous	14.11	.02
Storage	55.64	.09
Freight and Express	3.67	.006
	<hr/> \$55,887.42	<hr/> 100.00

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION PUBLISHED WEEKLY

CHICAGO, ILL., U.S.A.

Date	Page	Subject
1917	1	Original Article
1917	2	Original Article
1917	3	Original Article
1917	4	Original Article
1917	5	Original Article
1917	6	Original Article
1917	7	Original Article
1917	8	Original Article
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1917	14	Original Article
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1917	94	Original Article
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1917	96	Original Article
1917	97	Original Article
1917	98	Original Article
1917	99	Original Article
1917	100	Original Article

STATEMENT OF EXPENDITURES BY CLASSIFICATION

FOR THE STATE OF TENNESSEE

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37	7/1 to 12/31/37
Appointees	\$1,478.86	\$ 3,639.96	
Relief	2,831.23	6,983.66	
Per Diem	167.78	201.75	
Mileage	106.90	355.05	
Rental - Equipment	105.00	73.00	
Rental - Buildings	2.50	12.50	
Transportation Requests	29.79	106.65	
Trans. of Laborers	132.00		
Gas and Oil	52.27	400.68	
Repairs - Parts	370.04	325.98	29.50
Repairs - Labor	167.25	171.78	
Telegraph	5.64	35.43	
Supplies	60.87	100.22	
Equipment	41.25	80.85	
Miscellaneous	1.98	.75	
Freight and Express	1.65		
Storage	4.75		

\$5,559.76

\$12,488.26

29.50

GRAND TOTAL \$18,077.52

202.48 Unencumbered Balance

\$18,280.00 Appropriation

STATEMENT OF EXPENDITURES BY CLASSIFICATION

For State of Tennessee

Appropriation 201085

	Total	Per Cent
Appointees	\$ 5,118.82	28.31
Relief	9,814.89	54.29
Per Diem	369.53	2.04
Mileage	461.95	2.55
Rental - Equipment	178.00	.98
Rental - Buildings	15.00	.08
Transportation Rqsts	136.44	.75
Trans. of Laborers	132.00	.73
Gas and Oil	452.95	2.55
Repairs - Parts	725.52	4.01
Repairs - Labor	339.03	1.875
Telegraph	41.07	.22
Supplies	161.09	.89
Equipment	122.10	.675
Miscellaneous	2.73	.015
Freight and Express	1.65	.009
Storage	4.75	.026
	<hr/> \$18,077.52	<hr/> 100.00

THE UNIVERSITY OF CHICAGO

CHICAGO, ILL. 60637

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Statement of Expenditures by Classification
For Richmond, Virginia

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37
Appointees		\$ 490.00
Relief	\$ 1,302.35	1,683.88
Per Diem		9.08
Rental - Buildings	155.94	392.82
Rental - Equipment	30.00	69.42
Gas and Oil	5.23	8.07
Repairs - Parts	18.64	1.55
Repairs - Labor	17.70	23.45
Telegraph	88.41	96.70
Telephone	69.90	85.80
Supplies	66.41	198.22
Equipment	51.00	118.63
Storage	20.00	30.00
Freight and Express		1.52
Miscellaneous	8.00	1.78
	<hr/>	<hr/>
	\$1,833.58	\$3,210.92

Grand Total	\$5,044.50	
	<u>40.50</u>	Unencumbered Balance
	\$5,085.00	Appropriation

Statement of Financial Position

at December 31, 2018

(in thousands of dollars)

Assets	Liabilities	Equity
Current assets:		
Cash		
Accounts receivable		
Inventory		
Prepaid expenses		
Other current assets		
Non-current assets:		
Property, plant and equipment		
Intangible assets		
Investments		
Other non-current assets		
	Current liabilities:	
	Accounts payable	
	Short-term debt	
	Other current liabilities	
	Non-current liabilities:	
	Long-term debt	
	Other non-current liabilities	
		Equity:
		Common stock
		Retained earnings
		Other equity

Approved by the Board of Directors

Approved by the Management

Signature of the President

Date: _____

Signature of the Treasurer

Date: _____

Statement of Expenditures by Classification
For Richmond, Virginia

Appropriation 201085

	Total	Per Cent
Appointees	\$ 490.00	9.7
Relief	2,986.23	59.2
Per Diem	9.08	.1.
Rental - Buildings	548.76	10.9
Rental - Equipment	99.42	2.
Gas and Oil	13.30	.3
Repairs - Parts	20.19	.4
Repairs - Labor	41.15	.8
Telegraph	185.11	3.7
Telephone	155.70	3.08
Supplies	264.63	5.2
Equipment	169.63	3.4
Storage	50.00	1.
Freight and Express	1.52	.03
Miscellaneous	9.78	.19
	<u>\$5,044.50</u>	<u>100.00</u>

ORIGINAL ARTICLES

CONTENTS

PAGE

1000-1001

1002-1003

1004-1005

1006-1007

1008-1009

1010-1011

1012-1013

1014-1015

1016-1017

1018-1019

1020-1021

1022-1023

1024-1025

1026-1027

STATEMENT OF EXPENDITURES BY CLASSIFICATION

For State of Virginia

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$ 3,004.55	\$ 4,917.96
Non Relief	655.09	423.26
Relief	8,700.11	10,567.52
Per Diem	576.58	432.30
Mileage	1,154.49	1,223.37
Transportation Requests	9.55	14.45
Rental - Equipment	4.00	146.55
Gas and Oil	287.99	555.18
Repairs - Parts	66.30	315.62
Repairs - Labor	31.25	303.73
Telegraph	13.67	37.30
Telephone	25.20	118.35
Supplies	143.02	119.40
Equipment		55.99
Miscellaneous	8.35	6.46
Storage	15.00	
Freight and Express	3.54	14.48
	<hr/>	<hr/>
	\$14,698.69	\$19,251.92

GRAND TOTAL \$33,950.61

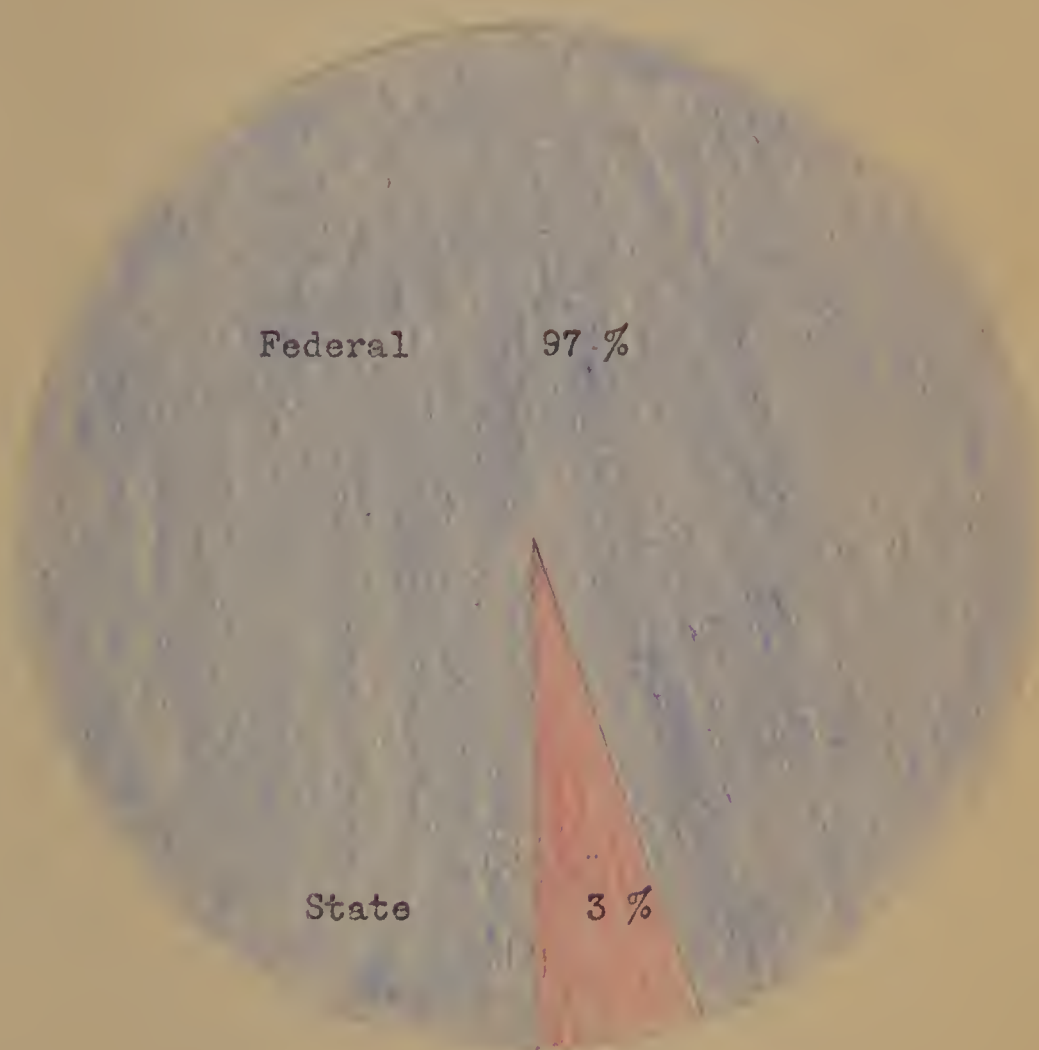
99.39 Unencumbered Balance
 \$34,050.00 Appropriation



1. *General Information*
 2. *Object of the Survey*
 3. *Method of Survey*

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5. 1000	5. 1000	1000
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Graph
Showing-
Comparison of Cooperative Total Amounts of
Federal and State Expenditures for
Year of 1937
In Virginia.

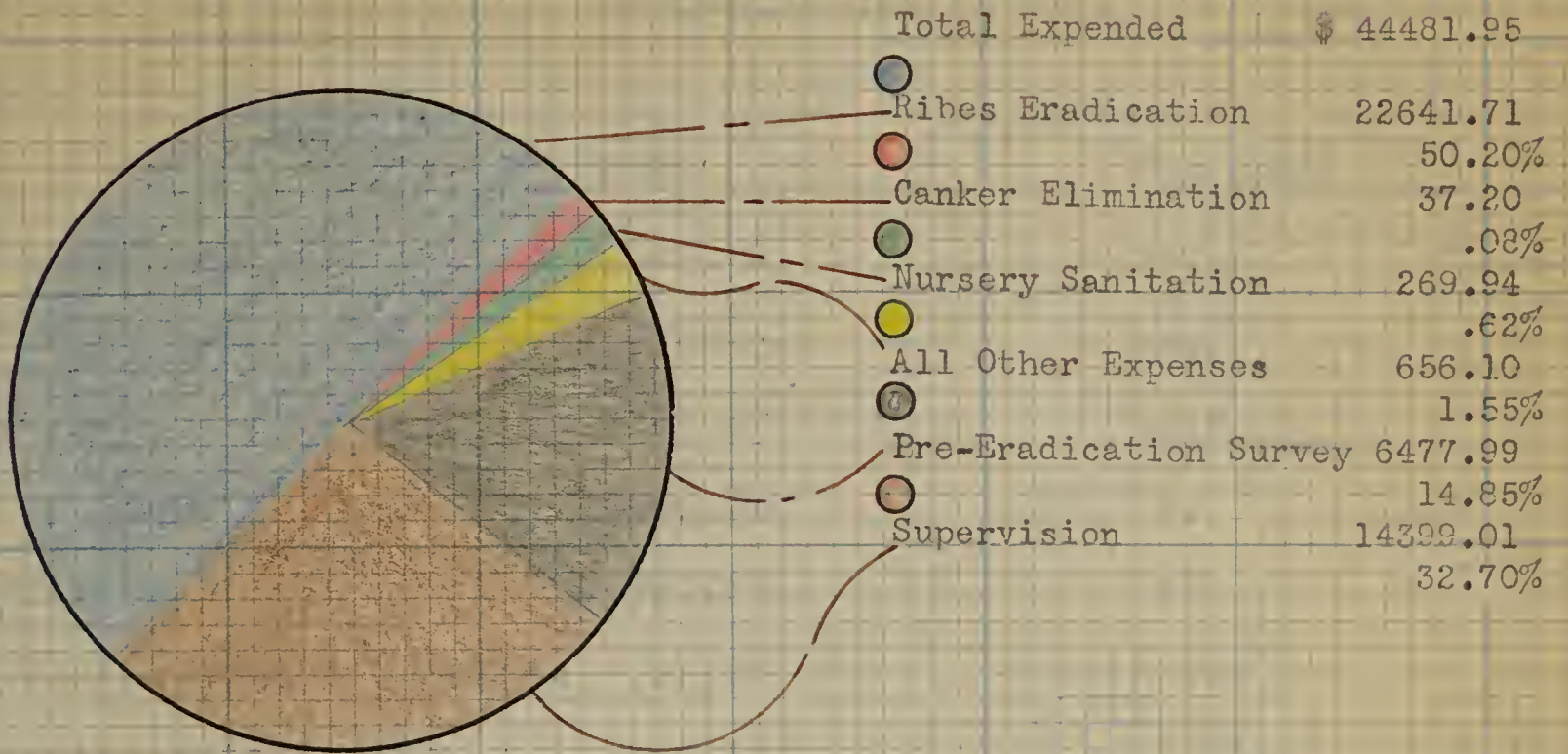


 Federal Expenditures - \$47,688.38
 State & Private Expenditures - \$ 1,463.59
(Regional office expenses included)

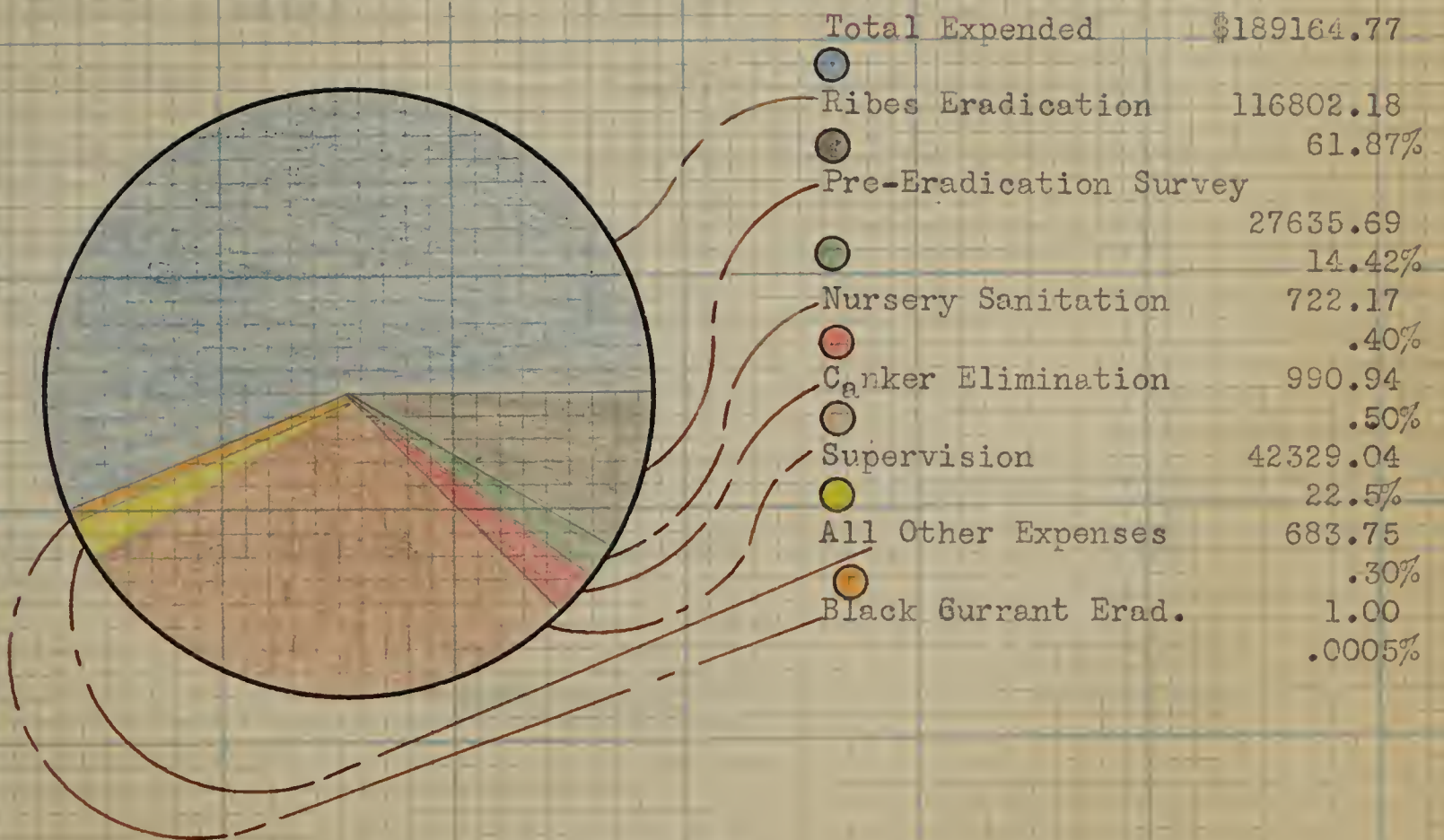
GRAPH SHOWING RELATIVE AMOUNTS EXPENDED FOR ALL LISTED PEST CONTROL ACTIVITIES
IN VIRGINIA FROM ALL SOURCES SINCE 1918 - 1937

-45.2

1937



1918-1937



STATEMENT OF EXPENDITURES BY CLASSIFICATION

For State of Virginia

Appropriation 201085

	Total	Per Cent
Appointees	\$ 7,922.51	23.3
Non Relief	1,078.35	3.2
Relief	19,267.63	56.8
Per Diem	1,008.88	3.
Mileage	2,377.86	7.
Transportation Requests	24.00	.07
Rental - Equipment	150.55	.4
Gas and Oil	843.17	2.5
Repairs - Parts	381.92	1.1
Repairs - Labor	334.98	1.
Telegraph	50.97	.1
Telephone	143.55	.4
Supplies	262.42	.8
Equipment	55.99	.2
Miscellaneous	14.81	.04
Storage	15.00	.04
Freight and Express	18.02	.05
	<hr/> \$33,950.61	<hr/> 100.00

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
RECORDS OF THE DEPARTMENT

NAME	DATE	REMARKS
W. H. C. ...	1914, 1915, 1916	...
...	1917, 1918, 1919	...
...	1920, 1921, 1922	...
...	1923, 1924, 1925	...
...	1926, 1927, 1928	...
...	1929, 1930, 1931	...
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...	1947, 1948, 1949	...
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...	2886, 2887, 2888	...
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...	2949, 2950, 2951	...
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...	2961, 2962	

Statement of Expenditures by Classification
For State of West Virginia

Appropriation 201085

	7/1 to 12/31/36	1/1 to 6/30/37
Appointees	\$ 3,240.55	\$ 4,764.21
Non Relief	150.40	
Relief	11,728.14	20,100.60
Per Diem	121.95	164.50
Mileage	333.40	721.55
Transportation Requests	13.83	28.40
Gas and Oil	98.62	273.95
Repairs - Parts	53.43	127.40
Repairs - Labor	3.95	60.87
Telegraph	.32	4.00
Supplies	135.99	195.04
Equipment		93.01
Miscellaneous		1.00

\$15,880.58

\$26,534.53

GRAND TOTAL \$42,415.11

388.89 Unencumbered Balance
\$42,804.00 Appropriation

James M. Smith & Son, General Merchants,
at the corner of 2nd and 3rd Sts.

Part of the following

Quantity	Quality	Price
100 lbs	1st Quality	\$1.00
50 lbs	2nd Quality	.75
25 lbs	3rd Quality	.50
10 lbs	4th Quality	.25
5 lbs	5th Quality	.12
2 lbs	6th Quality	.06
1 lb	7th Quality	.03
1/2 lb	8th Quality	.01
1/4 lb	9th Quality	.005
1/8 lb	10th Quality	.002
1/16 lb	11th Quality	.001
1/32 lb	12th Quality	.0005
1/64 lb	13th Quality	.0002
1/128 lb	14th Quality	.0001
1/256 lb	15th Quality	.00005
1/512 lb	16th Quality	.00002
1/1024 lb	17th Quality	.00001
1/2048 lb	18th Quality	.000005
1/4096 lb	19th Quality	.000002
1/8192 lb	20th Quality	.000001

James M. Smith & Son,
General Merchants.

At the corner of 2nd and 3rd Sts.

James M. Smith & Son,
General Merchants.

Statement of Expenditures by Classification
For State of West Virginia

Appropriation 201085

	Total	Per Cent
Appointees	\$ 8,004.76	18.9
Non Relief	150.40	.4
Relief	31,828.74	75.04
Per Diem	286.45	.67
Mileage	1,054.95	2.5
Transportation Requests	42.23	.09
Gas and Oil	372.57	.87
Repairs - Parts	180.83	.4
Repairs - Labor	64.82	.1
Telegraph	4.32 2	.01
Supplies	331.03	.8
Equipment	93.01	.218
Miscellaneous	1.00	.002
	<hr/> \$42,415.11	<hr/> 100.00

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

1900	1900	1900
1901	1901	1901
1902	1902	1902
1903	1903	1903
1904	1904	1904
1905	1905	1905
1906	1906	1906
1907	1907	1907
1908	1908	1908
1909	1909	1909
1910	1910	1910
1911	1911	1911
1912	1912	1912
1913	1913	1913
1914	1914	1914
1915	1915	1915
1916	1916	1916
1917	1917	1917
1918	1918	1918
1919	1919	1919
1920	1920	1920

1920

1920

Cooperative Funds for Calendar Year 1937
State and Local Cooperation

A Summary of State and Local Cooperative Funds in 1937, is shown in Omnibus Table IV, Page 4, of this Report.
A Total of \$28,120.90 was shown as State and Local Cooperation.

Details of this cooperation are given in the following tables. In the case of Maryland, North Carolina and Tennessee, figures have been changed from those given in Omnibus Table.

Corrected 8/8/38

State	Supervision *	Miscellaneous Purchases	Value of Cultivated Bushes at 10¢ each	Grand Total
GEORGIA				
1st Quarter	\$ 300.00	5.94	0	305.94
2nd " "	300.00	0	187.30	487.30
Sub-total	600.00	5.94	187.30	793.24
3rd Quarter	300.00	28.65	1,804.70	2,133.45
4th Quarter	300.00	0	2,716.10	3,016.10
	600.00	28.65	4,520.80	5,149.45
GRAND TOTAL	1,200.00	34.59	4,708.10	5,942.69

*Including Nursery Inspection

MARYLAND	Supervision Salary	Superv. Expenses	Office Rent and Telephone	Clerical Services	Value of Culti. Ribes Destroyed	Nursery Labor Digging Ribes	Grand Total
							275.00
1st Quarter	180.00	38.50	46.50	10.00			469.00
2nd Quarter	215.00	85.00	96.00	48.00	23.00	2.00	741.00
Sub-total	395.00	123.50	142.50	58.00	132.00	1.50	529.50
3rd Quarter	215.00	85.00	96.00		23.00	2.00	421.00
4th Quarter	215.00	85.00	96.00		155.00	3.50	950.50
Sub-Total	430.00	170.00	192.00				
GRAND TOTAL	825.00	293.50	334.50	58.00	178.00	5.50	\$1,694.50(1)

(1) This is \$25.00 more than appeared on Omnibus Table III.

NORTH CAROLINA	Supervis. Salary	Supervis. Expenses	Office Rent and Equipment	Coop. Farm Agents Serv.	Value of Culti. Ribes Destroyed	County Carpenter	Owner Cooper-	Salaries of Clerks Foremen and Labor	:Artist State:Preparing Fair:Exhibit Concession	Grand Total
1st Quarter	180.00	225.00	295.00	15.00	5,002.40	25.00	4.75			
2nd Quarter	40.00	30.00	287.00	2.00		3.00	.25			
Sub-Total	220.00	255.00	582.00	17.00	5,002.40	28.00	5.00			
3rd Quarter	100.00	100.00	287.00	9.00	1,518.40	0	2.25	300.00		
4th Quarter	90.00	50.00	399.10	3.00	1,409.25	0	0	300.00	40.00	25.00
Sub-Total	190.00	150.00	686.10	12.00	2,927.65	0	2.25	600.00	40.00	25.00
GRAND TOTAL	410.00	405.00	1,268.10	29.00	7,930.05	28.00	7.25	600.00	40.00	25.00

\$10,742.40

Cooperative Funds Calendar Year 1937
STATE AND LOCAL COOPERATION (Continued)

-48.2-
Corrected 8/8/38

A Summary of State and Local Cooperative Funds in 1937 is shown in Omnibus Table IV, Page 4 of this Report.

A total of \$28,120.90 was shown as State and Local Cooperation.

Details of this cooperation are given in the following tables. In the case of Maryland, North Carolina and Tennessee, figures have been changed from those given in Omnibus Table

TENNESSEE	Supervis. Salary	Office Rent and Equipment	Clerical Salary	Misc.	Nursery Inspection	Value of Cultivated Ribes Destroyed	Grand Total
First Quarter	135.00	30.00	120.00	9.99	-	-	294.99
Second Quarter	135.00	30.00	90.00	10.03	-	1,313.60	1,578.63
Sub-Total	270.00	60.00	210.00	20.02		1,313.60	1,873.62
Third Quarter	162.00	30.00	60.00		30.00	365.80	647.80
Fourth	162.00	90.00	50.00		30.00	4,312.00	4,644.00
Sub-Total	324.00	120.00	110.00		60.00	4,677.80	5,291.80
GRAND TOTAL	594.00	180.00	320.00	20.02	60.00	5,991.40	7,165.42 (1)

(1) This differs from the \$7,154.42 reported on Omnibus Table III by \$11.00 and is believed to be more accurate.

Corrected 8/8/38

VIRGINIA	Supervisors Salary	Office Space Telephone etc.	Value of Cultivated Ribes Destroyed	Nursery Sanitation	Value of Cooperative Labor	Garage Service for Storing trucks	Grand Total
First Quarter	90.00	90.00		19.98	2.00	0	201.98
Second "	90.00	90.00	298.30	20.06	0	52.00	550.36
Sub-Total	180.00	180.00	298.30	40.04	2.00	52.00	752.34
Third Quarter	90.00	90.00		19.98	55.65	0	255.63
Fourth Quarter	90.00	90.00	255.70			0	435.70
Sub-Total	180.00	180.00	255.70	19.98	55.65	0	691.33
GRAND TOTAL	360.00	360.00	554.00	60.02	57.65	52.00	\$1,443.67

WEST VIRGINIA	Supervisors Wages	Office Space Telephone	Value of Cultivated Ribes Destroyed	Nursery Sanitation	Salaries of Blister Rust Agents	Grand Total
First Quarter	55.00	78.00			274.50	407.50
Second "	55.00	78.00	73.10	200.00		406.10
Sub-Total	110.00	156.00	73.10	200.00	274.50	813.60
Third Quarter	30.00	84.00	29.40	25.00	0	168.40
Fourth Quarter	30.00	84.00	27.20	25.00		166.20
Sub-Total	60.00	168.00	56.60	50.00	0	334.60
Grand Total	170.00	324.00	129.70	250.00	274.00	\$1,148.20

The Grand Total for State and Private Cooperation for Calendar Year 1937 is \$28,136.88. This is an increase of \$15.98 over amount reported in Omnibus Table III, which was \$28,120.90.

Cooperative Union
 State and Local Cooperative Union
 A summary of State and Local Cooperative Union
 this report.
 A total of \$28,120.90 was shown as State and
 details of this cooperation are given in the
 California and Tennessee, figures have been obtained

California	Tennessee	Office	Equipment	Salary	Investment
First Quarter	15.00	20.00	120.00	2.00	-
Second Quarter	15.00	20.00	90.00	10.00	-
Sub-Total	30.00	40.00	210.00	20.00	-
Third Quarter	15.00	20.00	80.00	80.00	20
Fourth Quarter	15.00	20.00	80.00	80.00	20
Sub-Total	30.00	40.00	160.00	160.00	40
GRAND TOTAL	60.00	80.00	370.00	180.00	60

(1) This data is from the 1931-32 report on California and Tennessee.

California	Tennessee	Office	Equipment	Salary	Investment
First Quarter	15.00	20.00	120.00	2.00	-
Second Quarter	15.00	20.00	90.00	10.00	-
Sub-Total	30.00	40.00	210.00	20.00	-
Third Quarter	15.00	20.00	80.00	80.00	20
Fourth Quarter	15.00	20.00	80.00	80.00	20
Sub-Total	30.00	40.00	160.00	160.00	40
GRAND TOTAL	60.00	80.00	370.00	180.00	60

California	Tennessee	Office	Equipment	Salary	Investment
First Quarter	15.00	20.00	120.00	2.00	-
Second Quarter	15.00	20.00	90.00	10.00	-
Sub-Total	30.00	40.00	210.00	20.00	-
Third Quarter	15.00	20.00	80.00	80.00	20
Fourth Quarter	15.00	20.00	80.00	80.00	20
Sub-Total	30.00	40.00	160.00	160.00	40
GRAND TOTAL	60.00	80.00	370.00	180.00	60

RECEIVED
 AUG 10 1938
 U.S. DEPARTMENT
 PLANT DISEASE CONTROL
 Grand Total
 Answered

The Grand Total for State and Private Cooperation for California Year
 1931-32 was \$28,120.90, which was \$28,120.90

Cooperative Funds for Calendar Year 1937

48.1

State and Local Cooperation

A Summary of State and Local Cooperative Funds in 1937 is shown in Omnibus Table IV, Page 4 of this Report.
A total of \$28,120.90 was shown as State and Local Cooperation.

Details of this cooperation are given in the following tables. In the case of Maryland, North Carolina and Tennessee, figures have been changed from those given in Omnibus Table.

State	Supervision	Miscellaneous Purchases	Value of Cultivated Bushes at 10¢ each	Grand Total
GEORGIA				
1st Quarter	\$ 300.00	5.94		
2nd "	300.00		187.30	793.24
Sub-Total	600.00	5.94	187.30	793.24
3rd Quarter	300.00	2.815	1804.70	2,132.85
4th Quarter	300.00	0	2716.10	3,016.10
Sub-Total	600.00	2.815	4520.80	5,148.95
GRAND TOTAL	1200.00	3.159	4608.10	5,942.69

MARYLAND	Superv. Salary	Superv. Expenses	Office Rent and Telephone	Clerical Services	Value of Culti. Ribes Destroyed	Nursery Labor Digging Ribes	Grand Total
1st Quarter	180.00	38.50	46.50	10.00			275.00
2nd "	215.00	85.00	96.00	48.00	23.00	2.00	469.00
Sub-Tot.	395.00	123.50	142.50	58.00	23.00	2.00	741.00
3rd Quarter	215.00	85.00	96.00		132.00	1.50	529.50
4th "	215.00	85.00	96.00		23.00	2.00	421.00
Sub-Tot.	430.00	170.00	192.00		155.00	3.50	950.50
GRAND TOTAL	825.00	293.50	334.50	58.00	178.00	5.50	\$1694.50 (1)

(1) This is \$25.00 more than appeared on Omnibus Table III.

NORTH CAROLINA	Supervis Salary	Supervis. Expenses	Office Rent & Equipment	Coop. Farm Agents Serv.	Value of Culti. Ribes Destroyed	County Carpenter Owner Coop.	Salaries of Clerks Foremen & Labor.	State Fair Concession	Artist Preparing Exhibit	Grand Total
1st Quarter	180.00	225.00	295.00	15.00	5,002.40	25.00	4.75			
2nd "	40.00	30.00	287.00	2.00		3.00	.25			
Sub-Tot.	220.00	255.00	582.00	17.00	5,002.40	28.00	5.00			
3rd Quarter	100.00	100.00	287.00	9.00	1,518.40	0	2.25	300.00	40.00	25.00
4th Quarter	90.00	50.00	399.10	3.00	1,409.25	0	0	300.00	40.00	25.00
Sub-Total	190.00	150.00	686.10	12.00	2,927.65	0	2.25	600.00	40.00	25.00
GRAND TOTAL	410.00	405.00	1268.10	29.00	7,930.05	28.00	7.25	600.00	40.00	\$10,742.40

Cooperative Union for Farm

State and Local Cooperative

A summary of State and Local Cooperative Union for Farm and Local Cooperative. A total of \$5,150.00 was shown as State and Local Cooperative.

Details of this cooperation are given in the table. Carolina and Tennessee, figures have been changed

State	Supervision	Miscellaneous Expenses	Value of Gifted Shares at 10¢ each
1st Quarter	300.00	200.00	100.00
2nd "	300.00	200.00	100.00
Sub-Total	600.00	400.00	200.00
3rd Quarter	300.00	200.00	100.00
4th Quarter	300.00	200.00	100.00
Sub-Total	600.00	400.00	200.00
GRAND TOTAL	1200.00	800.00	400.00

State	Supervision	Miscellaneous Expenses	Value of Gifted Shares at 10¢ each
1st Quarter	180.00	120.00	60.00
2nd "	180.00	120.00	60.00
Sub-Total	360.00	240.00	120.00
3rd Quarter	180.00	120.00	60.00
4th Quarter	180.00	120.00	60.00
Sub-Total	360.00	240.00	120.00
GRAND TOTAL	720.00	480.00	240.00

(1) This is \$25.00 more than appeared on Summary Table III.

State	Supervision	Miscellaneous Expenses	Value of Gifted Shares at 10¢ each
1st Quarter	180.00	120.00	60.00
2nd "	180.00	120.00	60.00
Sub-Total	360.00	240.00	120.00
3rd Quarter	180.00	120.00	60.00
4th Quarter	180.00	120.00	60.00
Sub-Total	360.00	240.00	120.00
GRAND TOTAL	720.00	480.00	240.00

Cooperative Funds Calendar Year 1937

STATE AND LOCAL COOPERATION (continued)

A Summary of State and Local Cooperative Funds in 1937 is shown in Omnibus Table IV, Page 4 of this Report.
A total of \$28,120.90 was shown as State and Local Cooperation.

Details of this cooperation are given in the following tables. In the case of Maryland, North Carolina and Tennessee, figures have been changed from those given in Omnibus Table

TENNESSEE	Supervis. Salary	Office Rent and Equipment	Clerical Salary	Misc.	Nursery Inspection	Value of Culti. Ribes Destroyed	Grand Total
First Quarter	135.00	30.00	120.00	9.99	-	-	294.99
Second Quarter	135.00	30.00	90.00	10.03	-	1,313.60	1,578.63
	270.00	60.00	210.00	20.02	-	1,313.60	1,873.62
Third Quarter	162.00	30.00	60.00	-	30.00	365.80	647.80
Fourth "	162.00	90.00	50.00	-	30.00	4,312.00	4,644.00
Sub-Total	324.00	120.00	110.00	-	60.00	4,677.80	5,291.80
GRAND TOTAL	594.00	180.00	320.00	19.93	60.00	5,001.40	\$7,165.42 (1)

(1) This differs from the \$7,154.42 reported on Omnibus Table III by \$11.00 and is believed to be more correct.

VIRGINIA	Supervisors Salary	Office Space Telephone etc.	Value of Cultivated Ribes Destroyed	Nursery Sanitation	Value of Cooperative Labor	Garage Service for Storing Trucks	Grand Total
First Quarter	90.00	90.00	-	19.98	2.00	-	201.98
Second "	90.00	90.00	298.30	20.06	-	52.00	550.36
Sub Total	180.00	180.00	298.30	40.04	2.00	52.00	752.34
3rd Quarter	90.00	90.00	-	19.98	55.65	-	255.63
4th "	90.00	90.00	255.70	23.22	-	-	455.72
GRAND TOTAL	360.00	360.00	554.00	80.04	57.65	52.00	\$1,463.69

WEST VIRGINIA	Supervisors Wages	Office Space Telephone	Value of Cultivated Ribes Destroyed	Nursery Sanitation	Salaries of Blister Rust Agents	Grand Total
First Quarter	55.00	78.00	-	-	274.50	407.50
Second Quarter	55.00	78.00	73.10	200.00	-	406.10
Sub-Total	110.00	156.00	73.10	200.00	274.50	813.60
Third Quarter	30.00	84.00	29.40	25.00	0	168.40
Fourth Quarter	30.00	84.00	27.20	25.00	-	166.20
Grand Total	170.00	324.00	129.70	250.00	274.50	\$1148.20

The Grand Total for State and Private Cooperation for Calendar Year 1937 is \$28,156.90. This is an increase of \$36.00 over amount reported in Omnibus Table III, which was \$28,120.90.

A summary of State and Local Cooperative Societies for 1937
 A total of \$20,150.90 was shown as State and Local Cooperative Societies
 Details of this cooperation are given in the following table
 Tennessee and Tennessee

Quarter	Supervisors Salary	Office Rent and Equipment	Office Salary
First Quarter	155.00	30.00	150.00
Second Quarter	155.00	30.00	150.00
Third Quarter	155.00	30.00	150.00
Fourth "	155.00	30.00	150.00
Sub-Total	620.00	120.00	600.00
GRAND TOTAL	620.00	120.00	600.00

(1) This differs from the \$1,150.43 reported on Exhibit more correct.

Quarter	Supervisors Salary	Office Rent and Equipment	Office Salary
First Quarter	90.00	30.00	200.30
Second Quarter	90.00	30.00	200.30
Third Quarter	90.00	30.00	200.30
Fourth "	90.00	30.00	200.30
Sub-Total	360.00	120.00	801.20
GRAND TOTAL	360.00	120.00	801.20

Quarter	Supervisors Salary	Office Rent and Equipment	Office Salary
First Quarter	110.00	30.00	200.30
Second Quarter	110.00	30.00	200.30
Third Quarter	110.00	30.00	200.30
Fourth Quarter	110.00	30.00	200.30
Sub-Total	440.00	120.00	801.20
GRAND TOTAL	440.00	120.00	801.20

The Grand Total for State and Local Cooperative Societies for 1937 is \$20,150.90 over amount reported in Exhibit Table I, which was \$20,150.90

LOCAL CONTROL - RIBES ERADICATION
STATISTICAL TABLES BY STATES
GIVING DATA FOR 1937, AND FOR
PREVIOUS YEARS, BY PROJECT
WORKING, OWNERSHIP AND
YEAR INCLUDING COST
DATA

LOCAL CONTROLSummary

In 1937 Ribes eradication was carried on in the same six Southern States as in 1936; namely Maryland, Virginia, West Virginia, North Carolina, Tennessee and Georgia, laborers being secured in all States from the WPA Project, and in North Carolina, Virginia and West Virginia also from the CCC Project. Work done by Agric. Resettlement Administration is classed under W.P.A.

A short table will show the results of the last years work as compared to those of the preceding year, and those for all years.

TABLE I Giving Summary of Ribes Eradication Data for Southern Appalachian States for 1936 and 1937 and for Period 1918 - 1937 Inclusive.

Year	Acreage Worked	No. of Ribes Destroyed			No. 8 hour man-days	No. Bushes Pulled per m-d.
		Wild	culti.	Total		
1937	1,248,773	4,979,227	236,892	5,216,119	48,812.2	106.8
1936	1,413,269	5,360,195	444,279	5,804,474	44,717.5	129.8
1918- 1937	4,887,257	16,885,817	954,314	17,840,131	154,619.7	115.4

Year	Per Acre		Cost Data	
	No. of Bushes Pulled	No. 8 hour m-days	Total	Per Acre
1937	4.2	.039	\$ 99,239.82	0.079
1936	4.1	.031	103,712.11	0.073
1918- 1937 Incl.	3.6	.031	\$294,704.99	0.060

LOCAL CONTROL (Continued)

In the preceding table the figures for 1918 - 1937 include work in Kentucky and South Carolina where control work has been completed for the time being.

Detailed statistics on eradication figures by States may be found in Omnibus Tables I and IA, II and IIA, near the front of this report, as well as in following pages.

By Projects

A short table will show the results of Ribes eradication by projects for this past year as compared with 1936 and as compared to figures for whole period worked.

Table 2 Giving Summary of Ribes Eradication Data By Projects for 1937 and for period 1918-1937 for Southern Appalachian States.

1937					
Project	Acreage Worked	No. Ribes Bushes Removed			No. 8 hour man-days
		Wild	Culti.	Total	
Regular	8	258	0	258	11.7
WPA and ERA	1,118,173	4,886,100	229,428	5,115,528	46,113.0
CCC	130,592	92,871	7,464	100,335	2,687.5
Total of Emergency Proj.	1248,765	4,978,969	236,892	5,215,861	48,800.5
Total all Projects	1248,773	4,979,227	236,892	5,216,119	48,812.5
1918-1937					
Regular	16,682	60,322	2,272	62,594	212.2
WPA	2,966,770	11,714,220	756,863	12,471,083	104,556.6
CCC	318,586	2,662,564	8,155	2,670,719	30,622.9
PWA	1,585,219	2,448,711	187,024	2,635,735	19,228
Total Emergency Projects	4,870,575	16,825,495	952,042	17,777,537	154,407.5
Total all Projects	4,887,257	16,885,817	954,314	17,840,131	154,619.7

Received of the Hon. Secy of the Navy
the sum of \$1000.00 for the purchase of
the ship "Albatross" for the service of the
U. S. Navy.

For the purchase of the ship "Albatross"
for the service of the U. S. Navy.

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for the service of the U. S. Navy.

By Working

Work has progressed so far that it has been found necessary to repeat the working of certain areas. Where this is done for the second time it is called "Second Working", where done more than twice it is called "Third Working". Usually lands are not returned to for a second working except after an absence of several years. However where pine areas are worked during the dormant season from October to December there are a considerable number of Ribes left after initial working which should be removed. This removal is accomplished in the following spring, and the second removal or "mop-up" is classed as "Second Working". However, where initial work is carried on in the dormant season from January to April the areas are "mopped-up" in the same calendar year and the acreage reported and bushes removed are therefore all lumped as data of "initial eradication."

The following table gives a summary for local control by working for the District.

Table 3 Giving Summary of Ribes Eradication Data by Working for 1937 and for period 1918-1937 Incl. for Southern Appalachian States

1937 Working	Acreage Worked	Number of Ribes Destroyed			No. 8 hr. man-days
		Wild	Culti.	Total	
First	844,034	3,814,034	209,255	4,023,289	34,355.9
Second	398,125	1,104,975	27,555	1,132,530	13,370.9
Third	6,614	60,218	82	60,300	1,085.4
Total all three	1,248,773	4,979,227	236,892	5,216,119	48,812.2
1918-1937					
First	4,191,779	14,918,506	882,245	15,800,751	129,126.5
Second	682,876	1,896,615	71,664	1,968,279	23,909.8
Third	12,602	70,696	405	71,101	1,583.4
Total all Workings	4,887,257	16,885,817	954,314	17,840,131	154,619.7

For data on individual States see Omnibus Tables I and IA preceding.

By Ownership

Concerning Ownership of lands worked, when eradication work began in 1928 in Virginia only National lands were worked. This continued until 1932 when a beginning was made in control work on private and communal lands. Under W. P. A. the blister rust control organization in the Southern Appalachian States worked only on non-federal lands, the C. C. C. taking care of the work of the latter. However, since January 1, 1936, with the gradual withdrawal of CCC Camps from a region, and with wider latitude in the use of W. P. A. funds, eradication work was carried on by our organization not only on State, City and private lands, but on federal lands as well. This has been done with the consent of the officers in charge of the National lands including both Forests and Parks.

Land Ownership has been and is changing rapidly in the region through the acquisition by the federal government of lands to be included in National Forests, National Parks and National Parkways. The following table gives.

BILLETTER PEST CONTROL WORK
PERFORMED ON NATIONAL FOREST LANDS - SOUTHERN APPALACHIAN STATES

Acreage : National : Forest : La & in : Control : Area :	Calendar : Year :	Acreage Permitted of Ribs by						Total Acreage Permitted			Accumulative Totals			:Total :Acreage :Worked by :Years, 1st :2nd and :3rd :Workings	Unworked Acreage
		Forest Service			Bureau			of Ribs by both Agencies							
		1st Working	2nd Working	3rd W'g.	1st Working	2nd Working	3rd Working	1st Working	2nd Working	3rd Working	1st Working	2nd Working	3rd Working		
	774,250* up to 1932	4,508	1,014	0	140	0	0	4,648	1,014	0	4,648	1,014	0	5,662	0
	1933	54,899	1,380	0	0	0	0	54,899	1,380	0	59,547	2,394	0	61,941	
	1934	48,341	4,021	0	2,575	425	0	50,916	4,446	0	110,463	6,840	0	117,303	
National Forests	1935	13,843	0	0	125,976	-	0	139,819	-	0	250,282	6,840		257,122	
Chattahoochee	1936	12,868	29,779	0	95,029	1391	0	107,897	31,170		358,179	38,010		396,189	
Cherokee	1937	8,741	32,357	0	217,275	29933	3374	226,016	62,290	3374	584,195	100,300	3,374	687,869	190,055
Cumberland	1938														
George Washington	1939														
Jefferson	1940														
Monongahela															
Watahale															
Pisgah	Totals	143,195	68,551		440,995	31,749	3374	584,195	100,300	3,374	584,195	100,300	3,374	687,869	190,055

* Estimated acreage increase over that reported for 1936 due to location of additional pine areas and to purchase of more land by Forest Service.

This table was submitted before all data was in. The totals for this table do not agree with Tables 4 and 5 immediately following, which were made up later and which are more accurate.

Initial Work at end of 1937
Southern Appalachian States

Ownership	Total Acreage Control Area Estimated	Acreage Initial Work	Initial Work Not Complete	Total Acreage Reworked
State and Private				
Georgia	458,800	221,375	237,425	2,680
Kentucky (1)	63,140	63,140	0	0
Maryland	202,669	167,165	35,504	34,351
North Carolina	2,179,000	2,108,801	70,199	509,985
South Carolina	23,535	23,535	0	575
Tennessee	428,618	312,036	116,582	3,598
Virginia	404,941	386,269	18,672	6,455
West Virginia	344,000	239,890	104,110	30,182
Total	4,104,703	3,522,211	582,492	587,826
National Park				
North Carolina	21,000	14,285	6,715	2,010
Tennessee	1,825	1,825	0	0
Virginia	25,640	25,640	0	1,962
Total National Park	48,465	41,750	6,715	3,972
National Forests				
Georgia	300,000	263,766	36,234	1,250
Kentucky	0	0	0	0
Maryland	0	0	0	0
North Carolina	200,000	147,976	52,024	75,110
South Carolina	3,000	3,000	0	425
Tennessee	100,750	68,770	31,980	0
Virginia	84,500	66,177	18,323	22,761
West Virginia	86,000	77,204	8,796	4,134
Total Nat'l Forests	774,250	626,893	147,357	103,680
Resettlement Administration				
Maryland	925	925	0	0
Total National Lands	823,640	669,568	154,072	107,652
Grand Total all Lands	4928,343	4,191,779	736,564	695,478

(1) In Kentucky some of this white pine acreage may now be in the Cumberland National Forest, but it was private land in 1934 at the time of survey.

Compiled by
Roy G. Pierce
9/30/38

Initial Work at End of 1937
Southern Appalachian States

Ownership	Total Acreage Control Area Estimated (1)	Acreage Initial Work (1)	Initial Work Not Complete	Total Acreage Re-Worked
Georgia Communal				
State and Private	458,800	221,375	237,425	2,680
Federal				
National Forest	300,000	263,766	36,234	1,250
Total Lands	758,800	485,141	273,659	3,930
Kentucky				
State and Private	63,140	63,140	0	0
Federal Lands	Not yet ascertained			
Maryland				
State and Private	202,669	167,165	35,504	34,351
Old Resettlement Adm.	925	925	0	0
Total Lands	203,594	168,090	35,504	34,351
North Carolina				
State and Private	2179,000	2108,801	70,199	509,985
Federal				
Nat'l Park	21,000	14,285	6,715	2,010
Nat'l Forest	200,000	147,976	52,024	75,110
Sub-Total Federal	221,000	162,261	58,739	77,120
Total Lands	2400,000	2,271,062	128,938	587,105
South Carolina				
State and Private	23,535	23,535	0	0
Federal				
Nat'l Forest	3,000	3,000	0	0
Total Lands	26,535	26,535	0	0
Tennessee				
State and Private	428,618	312,036	116,582	3,598
Federal				
National Park	1,825	1,825	0	0
National Forest	100,750	68,770	31,980	0
Sub-Total Federal	102,575	70,595	31,980	0
Total Lands	531,193	382,631	148,562	3,598
Virginia				
State and Private	404,941	386,269	18,672	6,455
Federal				
National Park	25,640	25,640	0	1,962
National Forest	84,500	66,177	18,323	22,761
Sub-Total Federal	110,140	91,817	18,323	24,723
Total Lands	515,081	478,086	36,995	31,178
West Virginia				
State and Priv.	344,000	239,890	104,110	30,182
Federal N.For.	86,000	77,204	8,796	4,134
Total Lands	430,000	317,094	112,906	34,316
Grand Total	4928,343	4,191,779		

(1) Data from Table 1A, Omnibus Statistical Tables 1918-1937 - from Annual Report for 1937.

Note - State and Private includes Communal, and County lands as well

Roy G. Pierce
Sept. 30, 1938

Journal of the Survey of the
Territory of the United States

Station	Time	Distance	Remarks
1	8:00	1.0	Left camp at 8:00 AM
2	8:30	1.5	Arrived at station 2
3	9:00	2.0	Arrived at station 3
4	9:30	2.5	Arrived at station 4
5	10:00	3.0	Arrived at station 5
6	10:30	3.5	Arrived at station 6
7	11:00	4.0	Arrived at station 7
8	11:30	4.5	Arrived at station 8
9	12:00	5.0	Arrived at station 9
10	12:30	5.5	Arrived at station 10
11	1:00	6.0	Arrived at station 11
12	1:30	6.5	Arrived at station 12
13	2:00	7.0	Arrived at station 13
14	2:30	7.5	Arrived at station 14
15	3:00	8.0	Arrived at station 15
16	3:30	8.5	Arrived at station 16
17	4:00	9.0	Arrived at station 17
18	4:30	9.5	Arrived at station 18
19	5:00	10.0	Arrived at station 19
20	5:30	10.5	Arrived at station 20
21	6:00	11.0	Arrived at station 21
22	6:30	11.5	Arrived at station 22
23	7:00	12.0	Arrived at station 23
24	7:30	12.5	Arrived at station 24
25	8:00	13.0	Arrived at station 25
26	8:30	13.5	Arrived at station 26
27	9:00	14.0	Arrived at station 27
28	9:30	14.5	Arrived at station 28
29	10:00	15.0	Arrived at station 29
30	10:30	15.5	Arrived at station 30
31	11:00	16.0	Arrived at station 31
32	11:30	16.5	Arrived at station 32
33	12:00	17.0	Arrived at station 33
34	12:30	17.5	Arrived at station 34
35	1:00	18.0	Arrived at station 35
36	1:30	18.5	Arrived at station 36
37	2:00	19.0	Arrived at station 37
38	2:30	19.5	Arrived at station 38
39	3:00	20.0	Arrived at station 39
40	3:30	20.5	Arrived at station 40
41	4:00	21.0	Arrived at station 41
42	4:30	21.5	Arrived at station 42
43	5:00	22.0	Arrived at station 43
44	5:30	22.5	Arrived at station 44
45	6:00	23.0	Arrived at station 45
46	6:30	23.5	Arrived at station 46
47	7:00	24.0	Arrived at station 47
48	7:30	24.5	Arrived at station 48
49	8:00	25.0	Arrived at station 49
50	8:30	25.5	Arrived at station 50
51	9:00	26.0	Arrived at station 51
52	9:30	26.5	Arrived at station 52
53	10:00	27.0	Arrived at station 53
54	10:30	27.5	Arrived at station 54
55	11:00	28.0	Arrived at station 55
56	11:30	28.5	Arrived at station 56
57	12:00	29.0	Arrived at station 57
58	12:30	29.5	Arrived at station 58
59	1:00	30.0	Arrived at station 59
60	1:30	30.5	Arrived at station 60
61	2:00	31.0	Arrived at station 61
62	2:30	31.5	Arrived at station 62
63	3:00	32.0	Arrived at station 63
64	3:30	32.5	Arrived at station 64
65	4:00	33.0	Arrived at station 65
66	4:30	33.5	Arrived at station 66
67	5:00	34.0	Arrived at station 67
68	5:30	34.5	Arrived at station 68
69	6:00	35.0	Arrived at station 69
70	6:30	35.5	Arrived at station 70
71	7:00	36.0	Arrived at station 71
72	7:30	36.5	Arrived at station 72
73	8:00	37.0	Arrived at station 73
74	8:30	37.5	Arrived at station 74
75	9:00	38.0	Arrived at station 75
76	9:30	38.5	Arrived at station 76
77	10:00	39.0	Arrived at station 77
78	10:30	39.5	Arrived at station 78
79	11:00	40.0	Arrived at station 79
80	11:30	40.5	Arrived at station 80
81	12:00	41.0	Arrived at station 81
82	12:30	41.5	Arrived at station 82
83	1:00	42.0	Arrived at station 83
84	1:30	42.5	Arrived at station 84
85	2:00	43.0	Arrived at station 85
86	2:30	43.5	Arrived at station 86
87	3:00	44.0	Arrived at station 87
88	3:30	44.5	Arrived at station 88
89	4:00	45.0	Arrived at station 89
90	4:30	45.5	Arrived at station 90
91	5:00	46.0	Arrived at station 91
92	5:30	46.5	Arrived at station 92
93	6:00	47.0	Arrived at station 93
94	6:30	47.5	Arrived at station 94
95	7:00	48.0	Arrived at station 95
96	7:30	48.5	Arrived at station 96
97	8:00	49.0	Arrived at station 97
98	8:30	49.5	Arrived at station 98
99	9:00	50.0	Arrived at station 99
100	9:30	50.5	Arrived at station 100

8,72
Total Income
1931-1937

TABLE 4 Giving Data on Ribes Eradication for National Forests, National Parks, Other Federal Lands
in 1937

<u>National Forests</u>										
State	Names of Nat'l Forests	Acreage Worked	No. Ribes Destroyed			No. Hr. Man-Days	Total Cost	Per Acre		
			Wild	Cult.	Total			No. Ribes	No. Man-Days	Cost
Georgia	Chattahoochee	50,631	996,774	42,305	1,039,079	5,089	\$7366.14	20.5	0.10	\$ 0.14
N. Carolina	Nantahala Pisgah	141,596	107,365	9,253	116,618	2,605	3543.81	0.82	0.018	0.025
Tennessee	Cherokee	47,045	182,712	75	182,787	1,500.8	3173.76	3.88	0.32	0.067
Virginia	Geo. Washington Thos. Jefferson	41,388	960,374	370	960,744	10,302.5	16522.98	23.3	0.249	0.299
West Va.	Geo. Washington Monongahala	53,864	231,972	139	232,111	2,174.0	6483.37	4.3	0.040	0.110
Total	All National Forests	334,524	2,479,197	52,142	2,531,339	21,671.3	\$37,090.06	7.6	0.065	\$ 0.111
<u>National Parks</u>										
North Car.	Grt. Smoky Mt.	14,285	3,909	0	3,909	263.0	\$792.88	0.27	0.018	\$ 0.055
Virginia	Shenandoah	615	6,381	0	6,381	282.5	494.48	10.40	0.460	0.820
Total	All National Parks	14,900	10,290	0	10,290	545.5	\$1287.36	0.69	0.037	\$ 0.084
<u>Other Federal Lands</u>										
Maryland	E. R. A.	740	123,586	0	123,586	407.0	\$1348.30	164.3	0.55	\$ 1.82
Total All Federal Lands		350,164	2,613,073	52,142	2,665,215	22,623.8	\$38,725.72	7.6	0.646	\$ 0.110

10.02
 1938-1939
 1938-1939

TABLE 5 Giving Data on Ribes Eradication of National Forests, National Parks and other Federal Lands from 1928 to 1937 Inclusive

<u>National Forests</u>										
State	Nat'l Forest	Acreage Worked	No. Ribes destroyed			No. 8 hr. Man-Days	Cost	Per Acre		
			Wild	Cult.	Total			No. Ribes	No. Man-Days	Cost
Georgia	Chattahoochee	265,016	3276,255	69,551	3,345,806	10,517.0	\$21,095.05	12.6	0.039	\$0.079
N. Carolina	Nantahala Pisgah	223,086	108,103	11,904	120,007	3,320.0	6,431.74	0.54	0.015	0.029
S. Carolina	Nantahala	3,425	0	38	38	60.0	1,199.00	0.01	0.017	0.35
Tennessee	Cherokee	68,770	504,523	3,235	507,758	1,989.9	4,776.10	7.38	0.021	0.069
Virginia	Geo. Washington Thos. Jefferson	88,938	1392,666	1,380	1,394,046	14,722.0	26,078.68	15.9	0.168	0.298
W. Virginia	Monongahala Geo. Washington	81,338	458,784	139	458,923	5,613.4	13,379.44	5.64	0.069	0.164
Total All Nat'l Forests		730,573	5,740,331	86,247	5,826,578	36,225.3	\$72,960.01	7.99	0.049	\$ 0.100
<u>National Parks</u>										
North Carolina	Grt. Smoky Mt.	16,295	4,042	0	4,042	275.	\$ 993.71	0.25	0.017	\$ 0.061
Tennessee	" " "	1,825	2	14	16	198.	200.15	0.009	0.108	0.109
Virginia	Shenandoah	27,602	1,815,436	6	1815,442	17,706	38,628.05	65.8	0.618	1.40
Total All Nat'l Parks		45,722	1,819,480	20	1819,500	18,179.0	\$39,822.91	39.8	0.397	\$ 0.871
<u>Other Federal Lands</u>										
Maryland	E.R.A.	925	197,586	0	197,586	556.0	\$ 1,671.44	213.6	0.61	\$ 1.80
Grand Total All Nat'l Lands		775,840	7,757,397	86,267	7,843,664	54,960.3	\$ 114,454.36	10.1	0.071	\$ 0.147

Land from 1921 to 1927

National Forests			
State	1921 Forest Acres	1927 Forest Acres	1921-27 Change
Georgia	265,016	327,944	62,928
N. Carolina	228,088	100,118	-127,970
S. Carolina	3,425	0	-3,425
Tennessee	63,770	501,222	437,452
Virginia	60,938	172,666	111,728
W. Virginia	81,230	140,701	59,471

Total All National Forests 730,573

National Parks			
State	1921 Park Acres	1927 Park Acres	1921-27 Change
North Carolina	16,222	1,012	-15,210
Tennessee	1,022	0	-1,022
Virginia	27,002	1,812,156	1,785,154
Total All National Parks	44,246	1,813,168	1,768,922

Other Federal Lands			
Maryland	15,111	107,600	92,489
Grand Total All Federal Lands	774,819	3,734,736	2,959,917

Local Control Performed on National Forest Lands
Southern Appalachian States 1928 to 1937

Acreage Figures

States	Up to 1932	1933	1934	1935	1936	1937	Total all Years
Georgia		8,112	6,642	125,976	73,655	50,631	265,016
North Carolina		27,560	24,598	0	29,332	141,596	223,086
South Carolina							3,425
Tennessee		8,985	11,970	0	860	47,045	68,770
Virginia	5,522	10,681	7,148	6,912	17,287	41,388	88,938
West Virginia	-	606	2,004	6,931	17,933	53,864	81,338
							730,573

Blister Rust Control on National Forests

By Agency and Year - Acreage Worked

Georgia

Agency	1933	1934	1935	1936	1937	Total all Years
Total Acreage Worked	8,112	6,642	125,976	73,655	50,631	265,016
Acreage Worked by Forest Service						
1st	8,112	6,642	0	0	0	14,754
2nd	0	0	0	0	0	0
3rd	0	0	0	0	0	0
Total	8,112	6,642	0	0	0	14,754
Bureau Plant Industry of Ent. and Plant Quarantine						
1st	0	0	125,976	73,655	49,381	249,012
2nd	0	0	0	0	1,250	1,250
3rd	0	0	0	0	0	0
Total	0	0	125,976	73,655	50,631	250,262

Blister Rust Control on National Forests

By Agency and Year - Acreage Worked

North Carolina

Agency	1933	1934	1935	1936	1937	Total all Years
Total Acreage Worked	27,560	24,598	0	29,332	141,596	223,086
By Forest Service						
1st Working	27,560	24,598	0	0	590	52,748
2nd Working	0	0	0	0	31,861	31,861
3rd "	0	0	0	0	0	0
Total	27,560	24,598	0	0	32,451	84,609
By Bureau of Plant Industry and Ent. & Plant Quarantine						
1st Working	0	0	0	0	95,228	95,228
2nd "	0	0	0	29,332	13,917	43,249
3rd	0	0	0	0	0	0
Total	27,560	0	0	29,332	109,962	138,477

Blister Rust Control on National Forests by Agency and Year

Acreage Worked

SOUTH CAROLINA

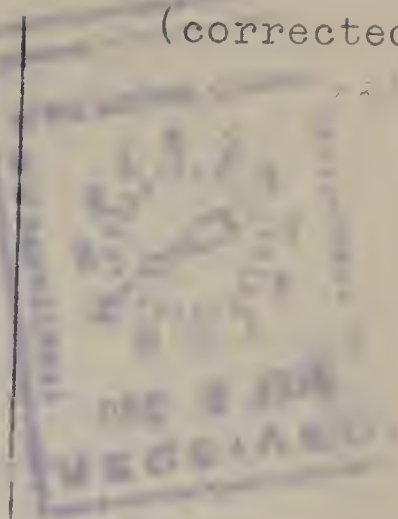
Agency	1933	1934	1935	1936	1937	Total all Years
Total Acreage Worked	425	3,000	0	0	0	3,425
By Forest Service						
1st Working	425					425
2nd "						
Total for Forest Ser.	425	0				425
By Bureau						
B. P. or Bur. Ent. & Plant Quar.						
1st Working		2,575				2,575
2nd Working		425				425
3rd Working						
Total for Bureaus		3,000				3,000

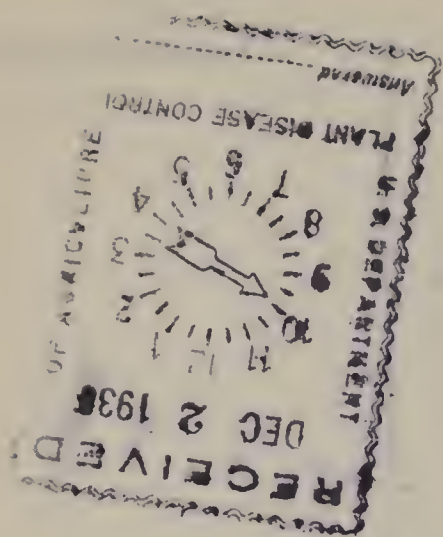
Blister Rust Control on National Forest by Agency and Year

Acreage Worked

TENNESSEE

Agency	1933	1934	1935	1936	1937	Total All Years
Total Acreage Worked	8,895	11,970	0	860	47,045	68,770
By Forest Service						
1st Working	8,895	11,970	0	180	0	21,045
2nd "	0	0	0	0	0	0
Total	8,895	11,970	0	180	0	21,045
By Bureaus						
Bureau Plant Industry						
Ent. & Plant Quarantine						
1st Working	0	0	0	680	47,045	47,725
2nd "	0	0	0	0	0	0
Totals	0	0	0	680	47,045	47,725





Blister Rust Control on National Forests by Agency and Years

VIRGINIA

Agency	1928 to 1932	1933	1934	1935	1936	1937	Total All Years
Total Acreage Worked	5,522	10,681	7,148	6,912	17,287	41,388	88,938
By Forest Service							
1st Working 4,508		9,301	3,562	6,912	292	0	24,575
2nd Working 1,014		1,380	3,586	0	0	0	5,980
3rd Working 0		0	0	0	0	0	0
Total	5,522	10,681	7,148	6,912	292	0	30,555
By Bureaus							
Plant Industry							
Ent. & Plant Quar.							
1st Working 0		0	0	0	15,604	25,998	41,602
2nd " 0		0	0	0	1,391	12,010	13,401
3rd " 0		0	0	0	0	3,380	3,380
Totals	0	0	0	0	16,995	41,388	58,383

Local Control Performed on National Forests by Agency and Year

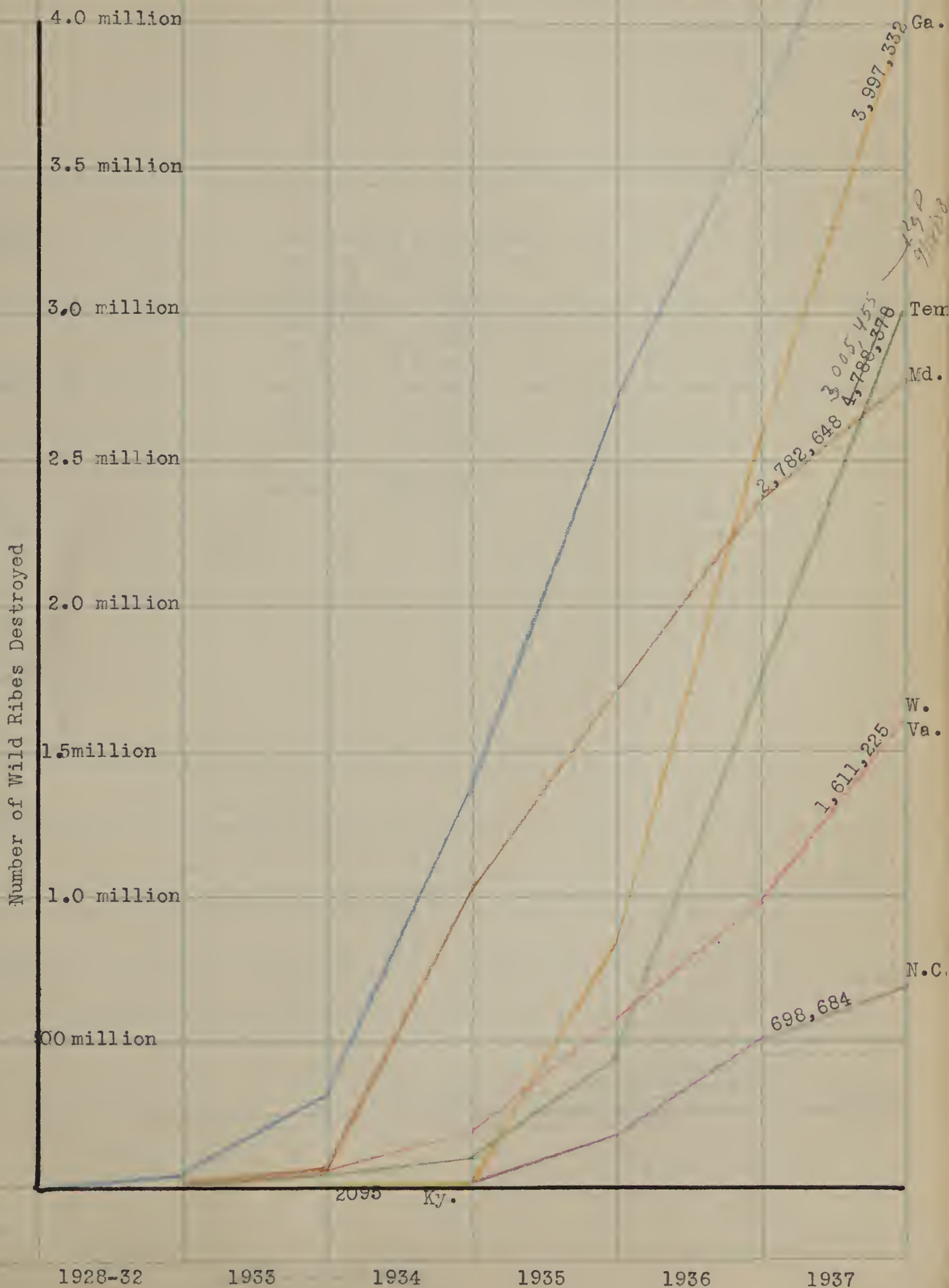
Acreage Worked

WEST VIRGINIA

Agency	1933	1934	1935	1936	1937	Total All Years
Total Acreage Worked	606	2,004	6,931	17,933	53,864	81,338
By Forest Service						
First Working	606	1,569	6,931	12,396	8,151	29,653
Second	0	435	0	447	496	1,378
Third	0	0	0	0	0	0
Total	606	2,004	6,931	12,843	8,647	31,031
By Bureaus						
Plant & Quarantine Industry						
Ent. & Plant Quarantine						
First Working	0	0	0	5,090	42,461	47,551
Second	0	0	0	0	2,756	2,756
Third	0	0	0	0	0	0
Total	0	0	0	5,090	45,217	50,307

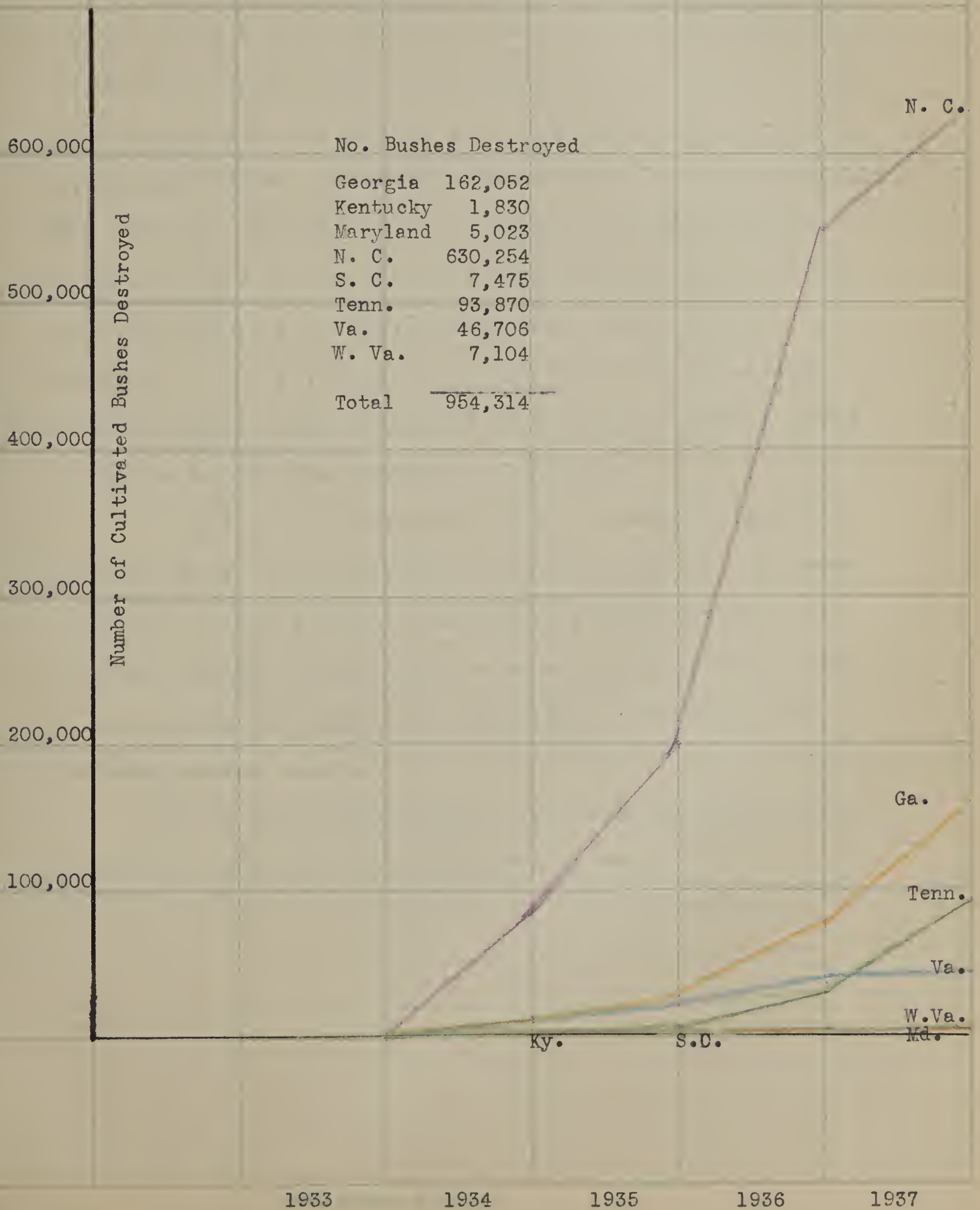
Graph Showing Number of Wild Ribes Destroyed in the Southern Appalachian States by Years 1928-1937 Inclusive

(Total for Region - 16,885,817)



Graph showing Number of Cultivated Ribes Destroyed in the Southern Appalachian States by Years 1928 - 1937 Inclusive

(Total for Region - 954,314 Bushes)



Summing up the eradication work in the District in 1937 we find 2,665,215 Ribes pulled on 350,164 acres, using 22,624 8-hour man-days labor and costing \$28,725.72 on National Lands and the remainder on non-federal lands. The figures for the latter show 2,550,904 Ribes pulled on 898,609 acres, using 26,188 man-days labor and costing \$60,536.75. Recalculations on "Cost of Eradication" change total figures slightly from \$99,239.82 given in Omnibus Table IV to \$99,262.47, the change being a subtraction of \$5.00 from cost in North Carolina and an addition of \$27.65 to cost in Virginia, making a net addition to original figures of \$22.65.

Table 5 shows that 28% of the acreage worked in the District in 1937, 39% of the cost, 46.3 of the man-days labor, and 53.5% of the Ribes pulled were on National Lands, while 72% the acreage 61% of the cost, 53.7% of the man-days labor and 46% of the cost was on non-federal lands.

As to the proportion of the work and cost borne by W.P.A. this will be calculated later.

TABLE 5 Showing Relation of Eradication Work on National Lands to that of the Whole Southern Appalachian District in 1937

	Total for Region	Total For Federal Lands	Totals For Non Federal Lands	Percent for Federal Lands	Percent for Non- Federal Lands
Acreage Worked	1,248,773	350,164	898,609	28.0	72.0
Number Ribes Pulled	4,979,227	2,665,215	2,550,904	53.5	46.5
Man-Days Labor	48,812	22,624	26,188	46.3	53.7
Cost	\$90,262.47	\$38,725.72	\$60,536.75	39.0	61.0
Average No. Ribes per acre	3.9	7.6	2.8		

Some Notes on Ribes eradication Cost for Southern
Appalachian States.

The cost of Ribes eradication usually varies directly with the number of bushes; the more bushes per acre, the higher the cost. The following figures for work in Maryland seem to bear out this statement.

Project	Data for Maryland			
	Avg. No. of Ribes per Acre	Cost of Eradication per Acre	No. of Acres Worked	Year
ARA	400	\$ 1.75	185	1936
CCC	292	1.12	260	1934
ARA	181	1.58	465	1937
CCC	169	0.65	182	1936
PWA	99	0.89	1,890	1933
All Projects - initial work	23.6	0.46	12,165	1937
All Initial	23.0	0.34	22,281	1936
All Projects initial work	21.0	0.232	24,259	1935
All projects initial work	8.7	0.077	106,695	1934

Charged at \$ 1.00 per day. Actual cost would be between \$2.00 and \$3.00 per day - or between 2 and 3 times that figured.

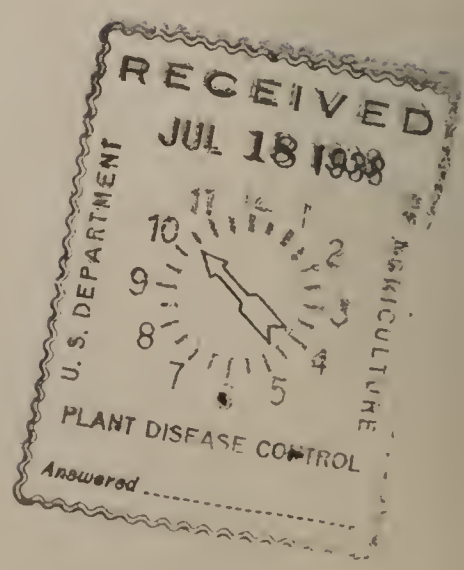
U.S. DEPARTMENT OF AGRICULTURE

PLANT DISEASE CONTROL

THE BOARD OF PLANT DISEASE CONTROL, U.S. DEPARTMENT OF AGRICULTURE, has received the following information from the Bureau of Plant Industry, U.S. Department of Agriculture, Washington, D.C., dated July 18, 1938:

PLANT DISEASE CONTROL				
PLANT	DISEASE	CAUSE	SYMPTOMS	CONTROL
Apple	Scab	Fungal	Dark brown spots on leaves and fruit	Remove diseased leaves and fruit; spray with Bordeaux mixture
Orange	Black spot	Fungal	Dark brown spots on leaves and fruit	Remove diseased leaves and fruit; spray with Bordeaux mixture
Peach	Brown rot	Fungal	Dark brown spots on leaves and fruit	Remove diseased leaves and fruit; spray with Bordeaux mixture
Prune	Black spot	Fungal	Dark brown spots on leaves and fruit	Remove diseased leaves and fruit; spray with Bordeaux mixture
Walnut	Leaf spot	Fungal	Dark brown spots on leaves	Remove diseased leaves; spray with Bordeaux mixture
Almond	Black spot	Fungal	Dark brown spots on leaves and fruit	Remove diseased leaves and fruit; spray with Bordeaux mixture
Cherry	Black spot	Fungal	Dark brown spots on leaves and fruit	Remove diseased leaves and fruit; spray with Bordeaux mixture

U.S. DEPARTMENT OF AGRICULTURE, PLANT DISEASE CONTROL, WASHINGTON, D.C.



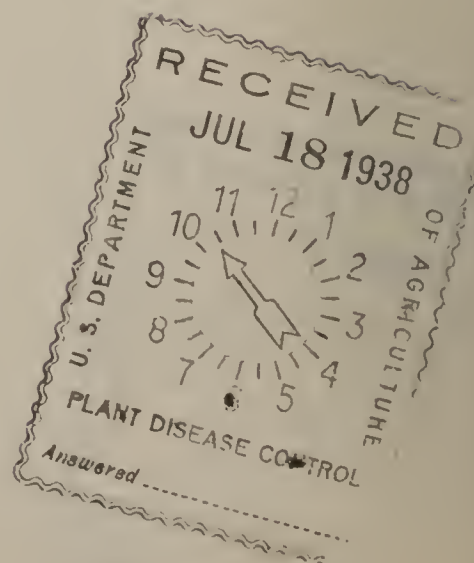
These figures for cost of control Ribes eradication include large acreages free of Ribes as well as areas with heavy concentration of Ribes. Rates of pay of laborers have varied in different years; and in different projects.

The cost of eradication in our state are not comparable with costs of another State, since the basic rates of pay for laborers varies so greatly.

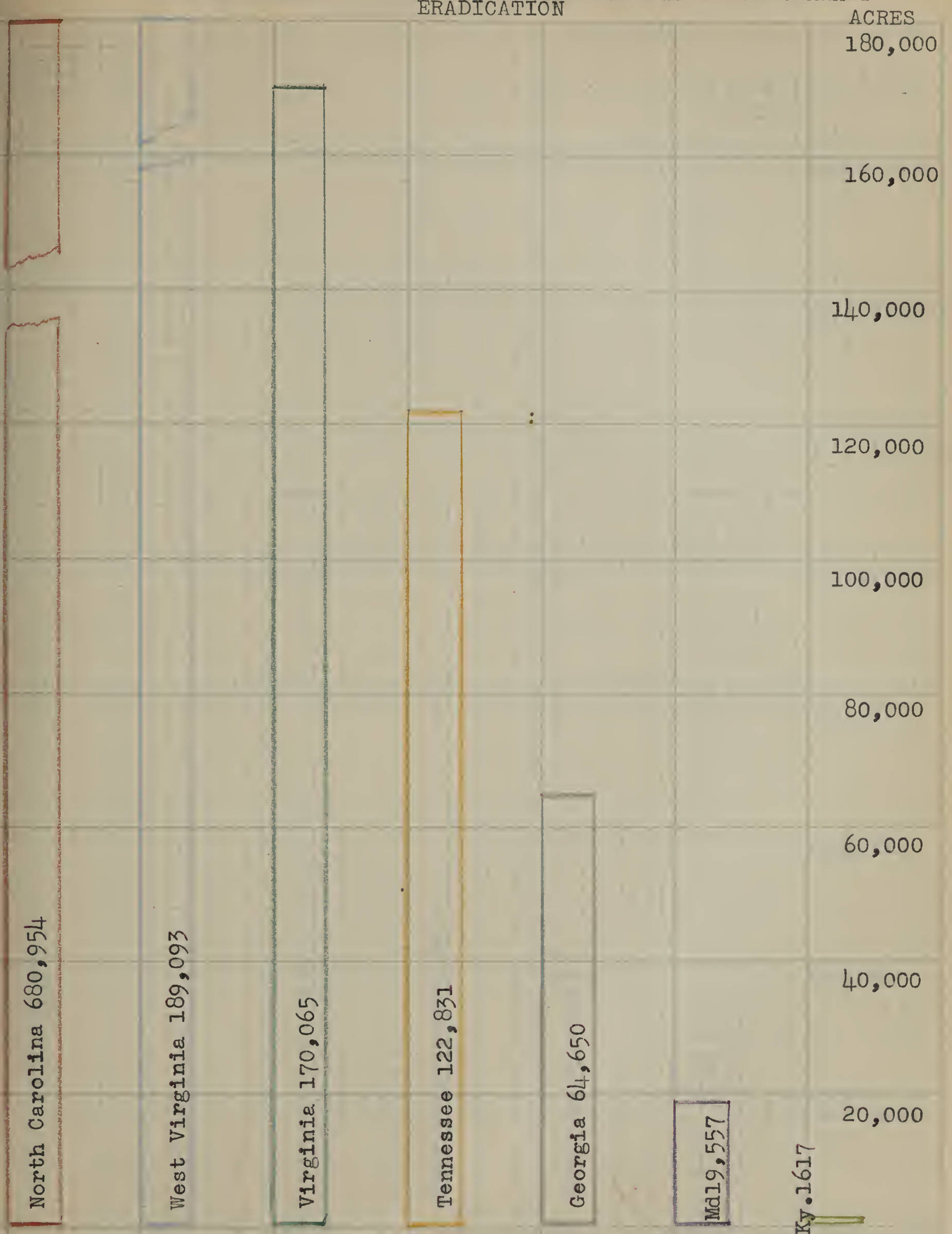
Let us consider Virginia to see if initial costs of eradication per acre do not vary directly with number of bushes per acre.

Data for Virginia (Initial work)

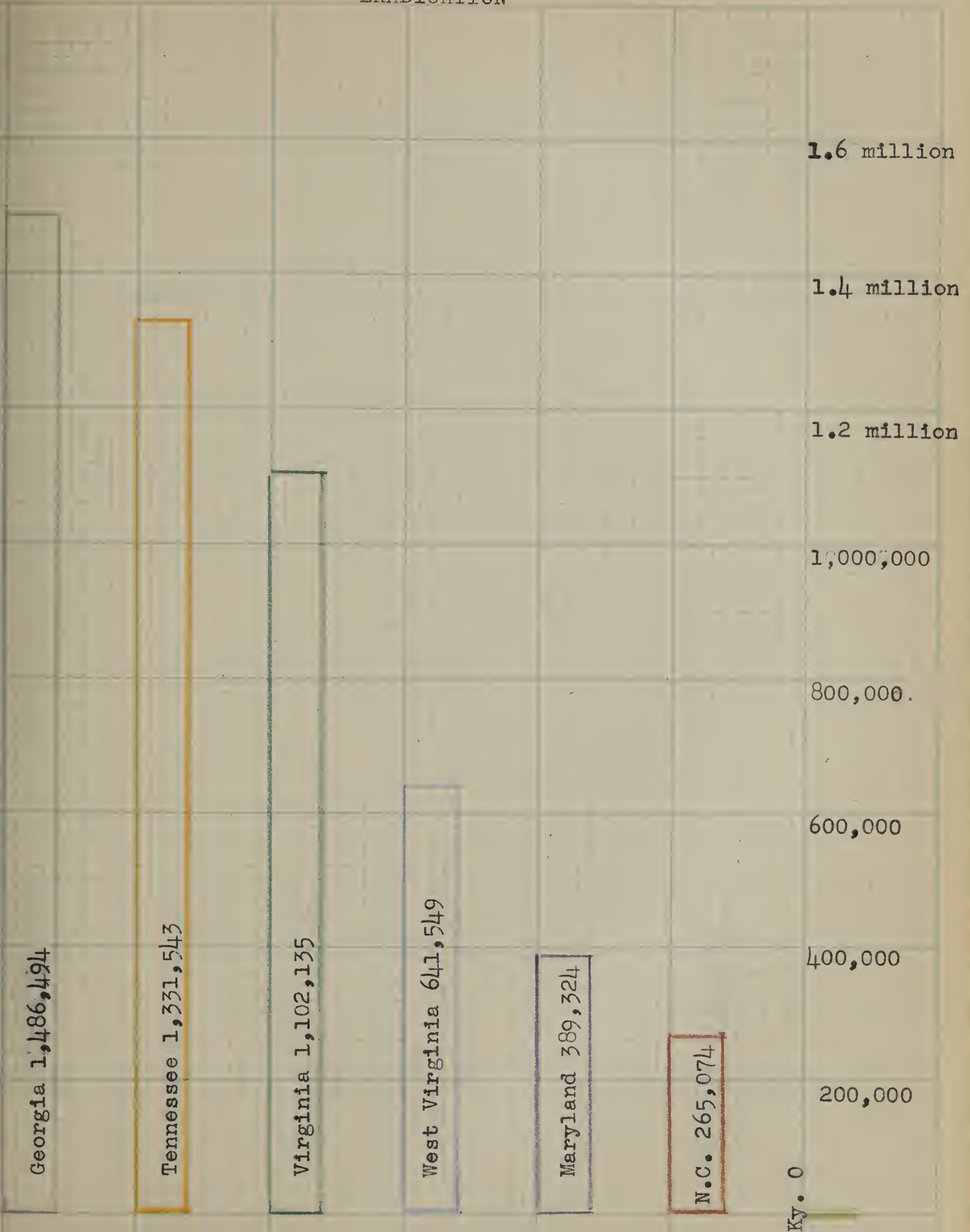
Average No. Ribes per acre	Cost of Eradication Per Acre	No. Acres Worked	Year
13.4	\$ 0.335	92,327	1935
12.8	0.450	19,818	1933
9.8	0.284	104,957	1934
8.8	0.165	101,047	1936
7.2	0.077	2,248	1932
3.2	0.092	4,187	1928-31
2.2	0.064	153,502	1937



GRAPH SHOWING TOTAL ACREAGE WORKED IN 1937 IN EACH OF THE 50.81
SOUTHERN APPALACHIAN STATES IN RIBES ERADICATION,
EXCLUSIVE OF NURSERY SANITATION AND BLACK CURRANT
ERADICATION

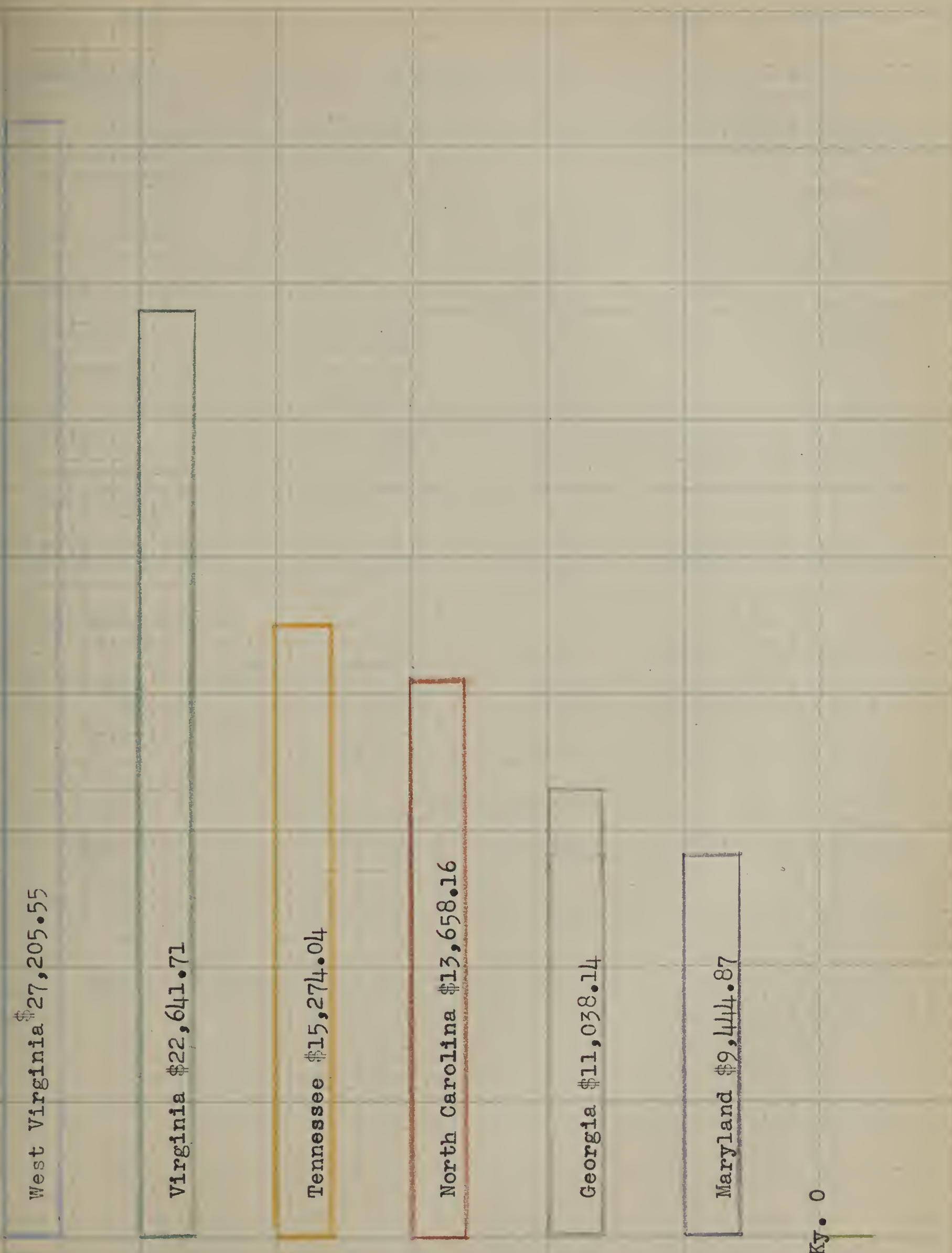


GRAPH SHOWING TOTAL RIBES DESTROYED (WILD AND CULTIVATED) 50.82
 IN 1937 IN EACH OF THE SOUTHERN APPALACHIAN STATES,
 EXCLUSIVE OF NURSERY SANITATION AND BLACK CURRANT
 ERADICATION



GRAPH SHOWING COMPARATIVE AMOUNTS EXPENDED FROM FEDERAL, STATE
AND LOCAL FUNDS, FOR RIBES ERADICATION IN EACH OF THE
SOUTHERN APPALACHIAN STATES IN 1937

50.83



Ky. 0

TABLE I

GEORGIA

Summary of Ribes Eradication in 1937 By Working, Project and Ownership

By Working	Acreage Worked	No. Ribes Destroyed			Number of 8 hour man-days	Total Cost	Per Acre		
		Wild	Culti.	Total			No. Ribes	No. Man-Days	Cost
First	60,881	1,210,362	85,660	1,296,022	6,105	\$ 8,279.55	21.2	0.10	\$0.136
Second	3,775	190,472	0	190,472	1,485	2,758.59	50.4	0.39	0.731
Total	64,656	1,400,834	85,660	1,486,494	7,590	\$11,038.14	22.9	0.12	\$0.17
By Project									
W.PA and Total	64,656	1,400,834	85,660	1,486,494	7,590	\$11,038.14	22.9	0.12	\$0.17
By Ownership									
Federal	50,631	996,774	42,305	1,039,079	5,089	\$ 7,366.14	20.5	0.10	0.14
State	25	3,110	0	3,110	21	32.13	124.4	0.84	1.285
Private	14,000	400,950	43,355	444,305	2,480	3,639.87	31.7	.107	0.252
Total	64,656	1,400,834	85,660	1,486,494	7,590	\$11,038.14	22.9	0.12	\$0.17

Summary of Fishes Destruction in 1937

By Working	Acres Worked	No. Fishes Destroyed		Total	Percentage of Total
		With	Without		
First	60,801	1,230,565	85,600	1,316,165	60.8
Second	3,775	190,175	0	190,175	1.7
Total	64,576	1,420,740	85,600	1,506,340	62.5
By Project					
W.P.A. and Total	64,576	1,420,740	85,600	1,506,340	62.5
By Ownership					
Federal	60,651	1,230,565	85,600	1,316,165	60.8
State	25	3,110	0	3,110	0.2
Private	11,000	190,175	15,000	205,175	1.7
Total	71,656	1,423,845	100,600	1,524,445	63.0

GEORGIA, 1937

Showing Status of White Pine Blister Rust Control
December 31, 1937

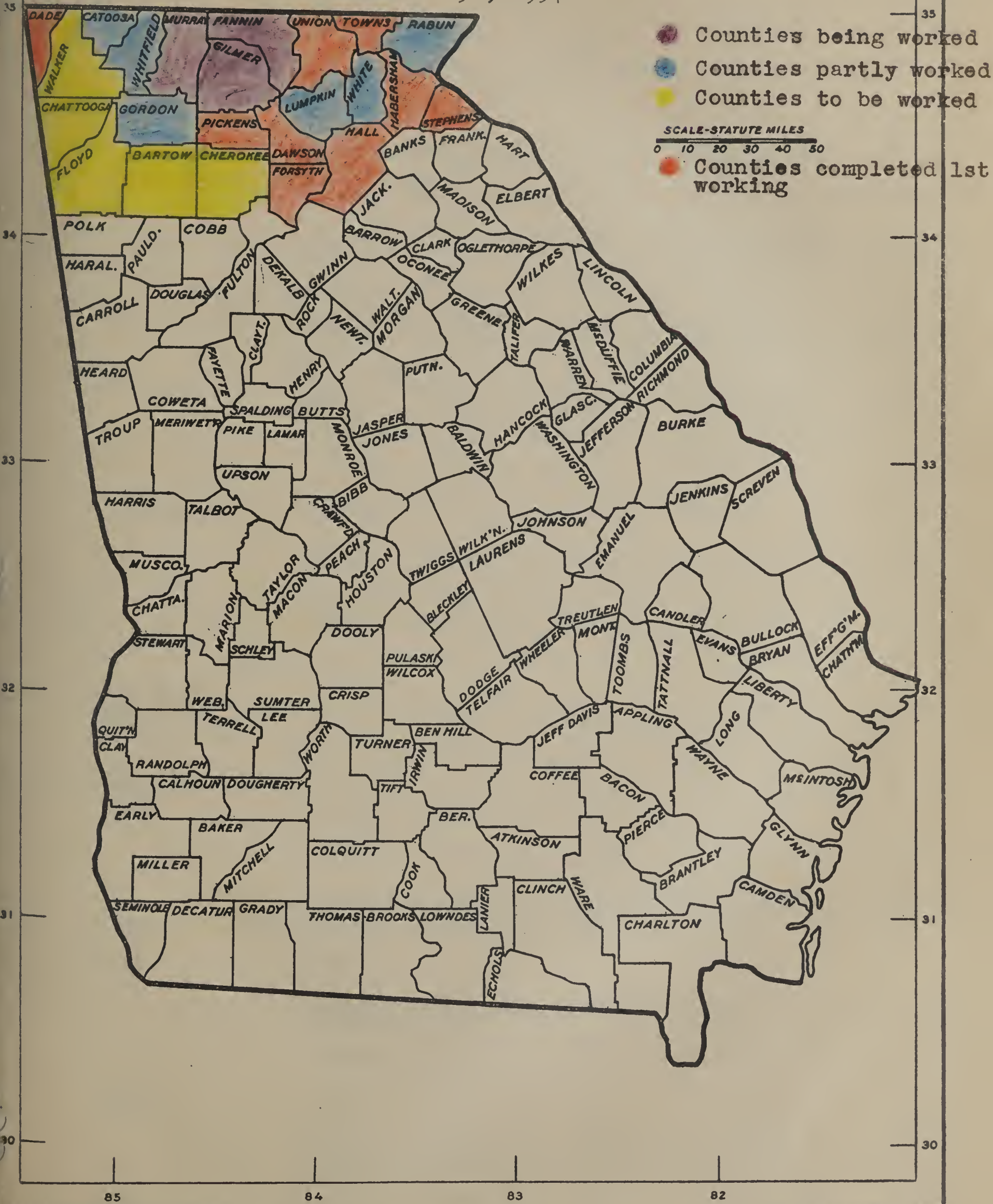


TABLE 2

Summary of Ribes Eradication in Georgia, By Working, Project and Year from 1933 to 1937

Classification	Year	Acres	No. Ribes Destroyed			Total Man- Days Labor	Total Cost	Per Acre		
			Wild	Cult.	Total			No. Ribes	No. Man Days	Cost
WORKING										
First	1933	8,851	0	0	0	40	\$ 162.65	0	0.004	\$0.018
	1934	133,362	0	12,744	12,744	468	3,907.37	0.09	0.003	0.029
	1935	173,097	832,193	16,418	848,611	3,169	10,087.68	4.90	0.018	0.058
	1936	108,950	1734,447	46,571	1,781,018	3,350	8,700.04	16.35	0.30	0.079
	1937	60,881	1210,362	85,660	1,296,022	6,105	8,279.55	21.2	0.10	0.136
Total		485,141	3777,002	161,393	3,938,395	13,132	31,137.29	8.12	0.27	0.642
Second	1935			659	659	68	217.60	-	-	-
	1936	155	29,858	0	29,858	,300	350.00	192.5	1.93	2.26
	1937	3,775	190,472	0	190,472	1,485	2,758.59	50.4	0.39	0.73
Totals		3,930	220,330	659	220,989	1,853	3,326.19	56.23	0.471	0.847
Both Workings Grand Totals		489,071	3997,332	162,052	4,159,384	14,985	\$34,463.48	8.54	0.30	\$0.070
WORKING WPA										
ECW	1935	124,122	828,042	8,719	836,761	2,961	7,603.78	6.74	.024	\$0.061
	1936	109,105	1764,305	46,571	1,810,876	3,650	9,050.04	16.6	.033	0.083
	1937	64,656	1400,834	85,660	1,486,494	7,590	11,038.14	22.9	0.12	0.017
	Total	297,883	3993,181	140,950	4,134,131	14,201	27,691.96	13.9	0.048	0.093
PWA	1933	8,851	0	0	0	40	162.65	0	0.004	0.018
	1934	6,642	0	235	235	11	119.01	0.035	0.0016	0.018
	Total	15,493	0	235	235	51	281.66	0.015	0.0033	0.018
All Projects	1934	126,720	0	12509	12,509	457	3788.36	0.099	0.0036	0.029
	1935	48,975	4,151	8358	12,509	276	2701.50	0.25	0.0056	0.056
	Total	175,695	4,151	20867	25,018	733	6489.86	0.142	0.0042	0.036
GRAND TOTAL		489,071	3997,332	162,052	4,159,384	14,985	\$34,463.48	8.54	0.30	\$0.070

TABLE 3

Summary of Ribes Eradication in Georgia, By Ownership and By Years from 1933 to 1937 Inclusive

Ownership	Year	Acres	No. of Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		Cost
			Wild	Culti.	Total			No. Ribes	No. of Man- Days	
Nat'l Forests	1933	8,112				40	\$ 147.90	0	-	\$0.018
" Chattahoochee'	34	6,642		235	235	11	119.01	0.035	-	0.018
	1935	125,976	736,585	1,321	737,906	2,027	7,308.00	5.86	0.016	0.058
	1936	73,655	1,542,896	25,690	1,568,586	3,350	6,154.00	2.13	0.045	0.083
	1937	50,631	996,774	42,305	1,039,079	5,089	7,366.14	20.5	0.101	0.14
	Total	265,016	3,276,255	69,551	3,345,806	10,517	\$21095.05	12.6	0.039	0.079
State	1935	125	11,337	0	11,337	31	76.88	90.7	0.248	0.615
	1936	No work								
	1937	25	3,110	0	3,110	21	32.13	124.4	0.84	1.285
	Total	150	14,447	0	14,447	52	109.01	96.3	0.347	0.726
Private	1933	739	0	0	0	Incl. With Nat'l For.	14.75	0	-	0.0195
	1934	126,720	0	12,509	12,509	457	3788.36	0.099	.0036	.031
	1935	46,996	84,271	15,756	100,027	1,179	2,920.40	2.13	.025	.062
	1936	35,450	221,409	20,881	242,290	300	2,896.04	6.82	.0085	.082
	1937	14,000	400,950	43,355	444,305	2,480	3,639.87	31.7	.177	.26
	Total	223,905	706,630	92,501	799,131	4,416	13,259.42	3.57	.019	.059
All Lands	Grand Total	489,071	3,997,332	162,052	4,159,384	14,985	34,463.48	8.54	0.030	0.070

TABLE 3

Summary of timber production in Georgia, by owner

Ownership	Year	Acres	No. of trees destroyed	
			With	Out
Natl Forests	1938	2,115		
	1939	2,015		225
	1940	152,070	152,070	1,321
	1941	152,070	1,515,000	1,500
	1942	50,011	500,000	1,500
	Total	252,012	2,270,000	2,321
	1943	152	11,321	0
Private	1938			
	1939			
	1940	25	2,115	0
	1941	150	11,321	0
	1942	150	0	0
	1943	150	0	0
	Total	350	13,436	0
All lands	1938	152,070	152,070	1,321
	1939	152,070	1,515,000	1,500
	1940	50,011	500,000	1,500
	1941	152,070	1,515,000	1,500
	1942	50,011	500,000	1,500
	1943	152	11,321	0
	Total	504,224	3,073,000	3,321

Table 4 Summary of Ribes Eradication in Georgia, By Working, Project and Year from 1933 to 1937 Inclusive									
By Working	Acreage Worked	No. of Ribes Destroyed			Number 8 hour man-days	Total Cost	Per Acre		
		Wild	Culti.	Total			No. Ribes	No. Man-Days	Cost
First	485,411	3,777,002	161,393	3,938,395	13,132	\$31,137.29	8.12	0.027	\$0.642
Second	3,930	220,330	659	220,989	1,853	3,326.19	56.23	0.471	0.847
Total	489,071	3,997,332	162,052	4,159,384	14,985	34,463.48	8.54	0.030	.070
By Project									
WPA	297,883	3,993,181	140,950	4,134,131	14,201	27,691.96	13.9	0.048	0.093
ECW	15,493	0	235	235	51	281.66	0.015	0.0033	0.018
PWA	175,695	4,151	20,867	25,018	733	6,489.86	0.142	0.0042	0.036
Total	489,071	3,997,332	162,052	4,159,384	14,985	34,463.48	8.54	0.030	.070
By Ownership									
Nat'l Forest	265,016	3,276,255	69,551	3,345,806	10,517	21,095.05	12.6	0.039	\$0.079
State	150	14,447	0	14,407	52	109.01	96.3	0.347	0.726
Private	223,905	706,630	92,501	799,131	4,416	13,259.42	3.57	0.019	0.059
Total	489,071	3,997,332	162,052	4,159,384	14,985	34,463.48	8.54	0.030	.070
By Year									
1933	8,851	0	0	0	40	162.65	0	.004	.0
1934	133,362	0	12,744	12,744	468	3,907.37	.096	.0035	.029
1935	173,097	832,193	17,077	849,270	3,237	10,305.28	4.9	.018	0.059
1936	109,105	1,764,305	46,571	1,810,876	3,650	9,050.04	16.6	0.033	0.083
1937	64,656	1,400,834	85,660	1,486,494	7,590	11,038.14	22.9	0.12	0.17
Total	489,071	3,997,332	162,052	4,159,384	14,985	\$34,463.48	8.54	0.030	0.070

MARYLAND

TABLE 1 Summary of Ribes Eradication in 1937 By Working, Project and Ownership

By Working	Acreage Worked	No. Ribes Destroyed			Number 8 hour man-days	Total Cost	Per Acre		
		Wild	Culti.	Total			No. Ribes	No. Man-Days	Total Cost
First	12,165	287,283	492	287,775	1,785	\$5,610.87	23.6	0.147	0.467
Second	4,158	60,005	181	60,186	809	2,460.00	14.5	0.195	0.59
Third	3,234	41,281	82	41,363	447	1,374.00	12.8	0.138	0.42
Total	19,557	388,569	755	389,324	3,041	9,444.87	19.9	0.155	0.48
By Project									
WPA and Tot.	19,557	388,569	755	389,324	3,041	\$ 9,444.87	19.9	0.155	0.48
By Ownership									
Federal	740	123,586	0	123,586	407	1,348.30	167.0	0.55	1.82
State	2,104	146,273	14	146,287	1,133	3,636.72	69.5	0.54	1.72
County & City	10,000	0	478	478	(1)	(1)	.05	-	0
Private	6,713	118,710	263	118,973	1,501	4,459.85	19.09	0.22	0.66
Total	19,557	388,569	755	389,324	3,041	\$9,444.87	19.9	0.155	0.48

(1) Work done by an agent - not counted here, but under Supervision

TABLE I

Summary of Ribes eradication in 1937 by working

By Working	Average Worked	No. Ribes Destroyed		Number 8 hour man-days
		Cult.	Total	
First	12,152	125	389,321	1,785
Second	4,158	181	60,136	809
Third	3,234	82	11,563	144
Total	19,544	288	389,321	2,738

By Project

WPA and Tot. 19,544 288 389,321 2,738

By Ownership

Ownership	Average Worked	No. Ribes Destroyed		Number 8 hour man-days
		Cult.	Total	
Private	6,713	263	118,973	1,501
County City	10,000	478	178	(1)
State	3,104	14	116,267	1,133
Federal	440	0	152,588	1107
Total	19,544	288	389,321	2,738

(1) Work done by an agent - not counted here, but under supervision

Status of Blister Rust Survey and Control Work

December 31, 1937

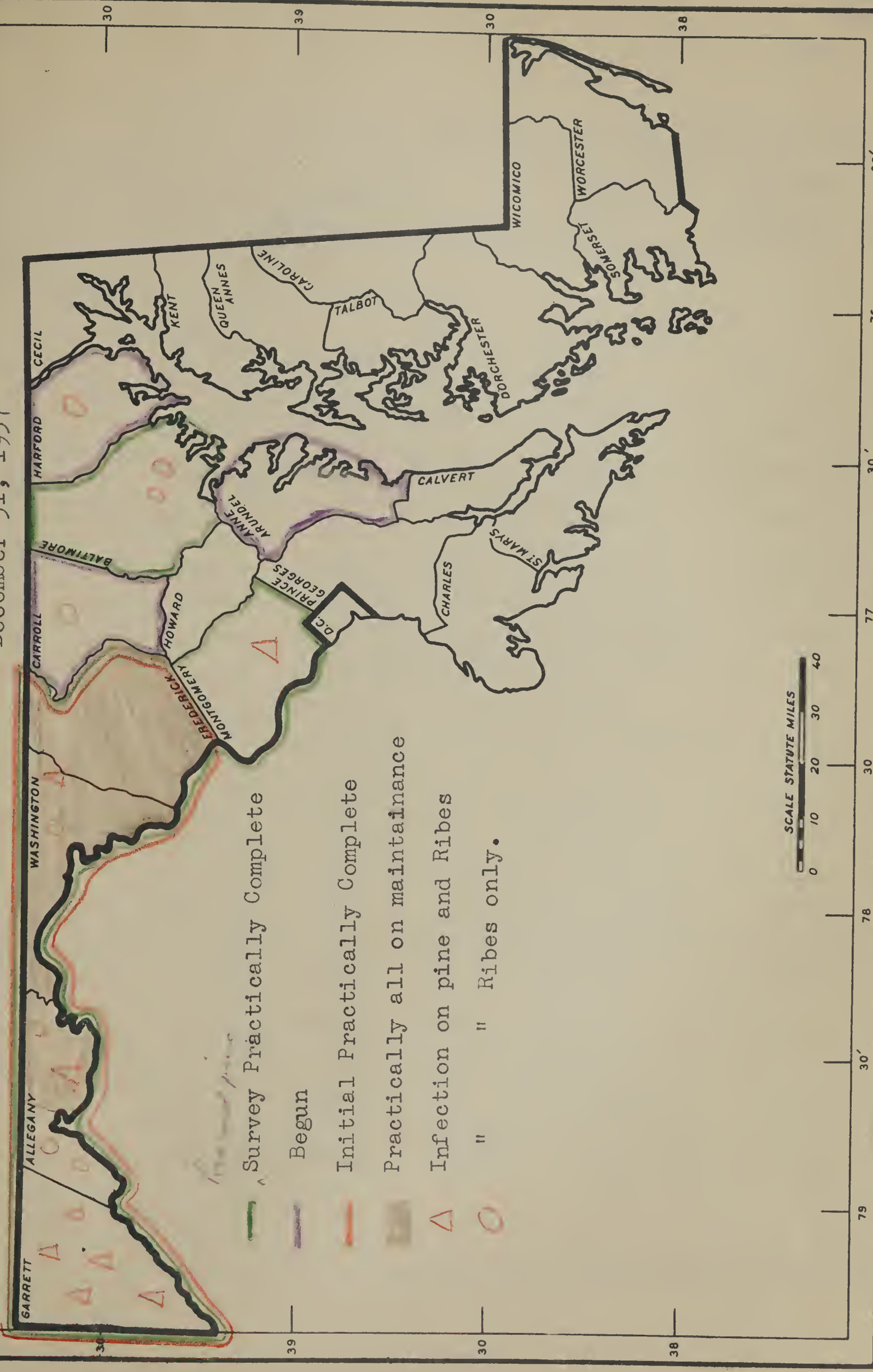




Table 2 Summary of Ribes Eradication in Maryland By Working, Project and Year from 1932 to 1937 Inclusive

Classification	Year	Acres Worked	Number of Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. Ribes	Number Man-Days	Cost
WORKING										
First	1932	800		1	1		\$ 26.35	.001	-	\$0.033
	1933	1,890	187,465	5	187,470	316	1,684.95	99.04	0.17	0.89
	1934	106,695	927,189	1,062	928,251	2,442	8,219.05	8.71	0.023	0.077
	1935	24,259	511,835	496	512,331	2,112	5,622.07	21.04	0.087	0.232
	1936	22,281	511,614	881	512,495	2,681	7,653.65	23.0	0.12	0.344
	1937	12,165	287,283	492	287,775	1,785	5,610.87	23.6	0.15	0.46
	Total	168,090	2,425,386	2,937 (1)	2,428,323	9,336(2)	\$28,816.94	14.45	0.055	\$0.172
Second	1934	469	37,386	0	37,386	56	204.73	80.7	0.119	0.436
	1935	18,603	185,718	1,408	187,126	1,588	4,484.18	10.0	0.085	0.241
	1936	1,899	21,894	92	21,989	434	1,000.00	11.6	0.228	0.52
	1937	4,158	60,005	181	60,186	809	2,460.00	14.4	0.194	0.59
	Total	25,129	305,503	1,681	307,184	2,887	\$8,148.91	12.2	0.115	\$0.32
Third	1936	5,988	10,478	323	10,801	498	1,300.00	1.8	0.083	0.22
	1937	3,234	41,281	82	41,363	447	1,374.00	12.8	0.138	0.42
	Total	9,222	51,759	405	52,164	945	2,674.00	5.6	0.116	0.33
All Workings	Grand Total	202,441	2,782,648	5,023	2,787,671	13,168 (2)	\$39,693.85	13.7	0.065	\$0.195

(1) The above figures differ from those in Table IA, correction of 14 having been made by addition to no. cultivated bushes destroyed in initial work and subtraction of 14 from no. cultivated bushes destroyed in second work.

Table 2 (Continued) Summary of Ribes Eradication in Maryland, By Working, Project and Year from 1932 to 1937 Inclusive

Table 2 (Continued) Summary of Ribes Eradication in Maryland, by Working Project and Year from 1932 to 1937, Inclusive										
Classification	Year	Acres Worked	No. of Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		
			Wild	Cult.	Total			No. Ribes	No. Man-Days	Cost
P R O J E C T										
Regular	1932	800	0	1	1	-	\$ 26.35	.001	-	0.033
	1937	-	0	0	0	-	158.50	-	-	-
	Total	800	0	1	1		184.85	.001	-	0.23
WPA	1935	18,487	308,689	430	309,119	1,770	5,196.36	16.7	0.096	0.28
	1936	29,801	439,221	1,296	440,517	3,346	9,512.51	14.7	0.112	0.32
	1937	19,092	304,408	755	305,163	2,818	8,553.17	16.0	0.147	0.45
	Total	67,380	1,052,318	2,481	1,054,799	7,934	\$23,262.04	15.7	0.11	\$0.34
ARA	1936	185	74,000	0	74,000	149	323.14	400.0	0.80	1.75
	1937	465	84,161	0	84,161	223	733.20	181.0	0.48	1.58
	Total	650	158,161	0	158,161	372	1,956.34	243.3	0.57	\$1.62
WPA and ARA Combined	Total	68,030	1,210,479	2,481	1,212,960	8,306	\$24,318.38	17.8	0.122	0.36
PWA or NIRA	1933	1,890	187,465	5	187,470	316	1,684.95	99.04	0.17	0.89
	1934	106,904	889,024	1,062	890,086	2,206	8,131.78	8.3	0.21	0.76
	1935	18,642	114,361	1,462	115,823	1,067	4,046.89	6.2	0.057	0.22
	Total	127,436	1,190,850	2,529	1,193,379	3,589	\$13,863.62	9.3	0.03	0.10
CCC and ECW	1934	260	76,051	0	76,051	292	292.00	292	1.12	\$1.12
	1935	5,733	274,503	12	274,515	863	863.00	47.9	.15	.15
	1936	182	30,765	0	30,765	118	118.00	169.	.65	.65
	Total	6,175	381,319	12	381,331	1,273 (2)	1,273.00	60.8	0.20	0.20
All Projects	Grand Total	202,441	2,782,648	5,023	2,787,671	13,168 (2)	\$39,693.85	13.7	0.065	0.196
Y E A R	1932	800	0	1	1	-	26.35	.001	-	0.033
	1933	1,890	187,465	5	187,470	316	1,684.95	99.04	0.17	0.89
	1934	107,164	965,075	1,062	966,137	2,498	8,423.78	9.01	0.02	0.079
	1935	42,862	697,553	1,904	699,457	3,700	10,106.25	16.31	0.09	0.235
	1936	30,168	543,986	1,296	545,282	3,613	9,953.65	16.07	0.11	0.33
	1937	19,557	488,569	755	489,324	3,041	9,444.87	19.9	0.155	0.48
		202,441	2,782,648	5,023	2,787,671	13,168 (2)	\$39,639.85	13.7	0.065	0.196

(2) The above figures differ from these in Table IA, correction of 13 being made and added to man-days in initial work and to man-days under CCC.

Table 2 (Continued)
 Classification
 Year
 Acres
 Worked
 Cult.
 Total

Regular	1935	100	0	1	1
	1937	-	0	0	1
Total		100	0	1	1
WPA	1935	1,187	300,000	1,487	1,187,000,000
	1936	29,201	1,222,221	1,251,422	1,180,000,000
	1937	12,000	300,000	420,000	1,180,000,000
Total		67,388	1,222,221	2,458,409	1,180,000,000
ARA	1935	182	74,000	0	1,180,000,000
	1937	182	74,000	0	1,180,000,000
Total		364	148,000	0	1,180,000,000
WPA and ARA Combined	Total	67,024	1,296,221	2,458,409	1,180,000,000
WPA	1935	1,200	100,000	1,300	1,180,000,000
or NIMA	1937	100,000	1,000,000	1,100,000	1,180,000,000
Total		101,200	1,100,000	1,101,300	1,180,000,000
ECW and	1935	200	76,000	0	1,180,000,000
	1937	2,722	274,000	12	1,180,000,000
Total		2,922	350,000	12	1,180,000,000
Grand Total	1935	800	0	1	1
	1937	1,890	107,100	107,100	1,180,000,000
	1936	107,100	1,000,000	1,107,100	1,180,000,000
	1937	107,100	1,000,000	1,107,100	1,180,000,000
Total		2,997	2,107,100	2,214,200	1,180,000,000

(2) The above figures differ from those in Table 1, correction to and to man-days under CCC.

TABLE 3 Summary of Ribes Eradication in Maryland, By Ownership and Years from 1932 to 1937 Inclusive.

Ownership	Year	Acres	Number of Ribes Destroyed		Total Man-Days Labor	Total Cost	Per Acre			
			Culti.	Total			No. Ribes	Number Man- Days	Cost	
Federal Govt.	1936	185	74,000	0	74,000	149	323.14	400.0	0.79	1.75
Resettlement Adm.	1937	740	123,586	0	123,586	407	1,348.30	164.3	0.55	1.82
	Total	925	197,586	0	197,586	556	1,671.44	213.6	0.61	1.80
State	1933	430	51,556	0	51,556	138	615.96	119.9	0.32	1.41
	1934	17,980	293,785	0	293,785	667	2,433.52	16.3	0.03	0.13
	1935	4,000	151,202	0	151,202	973	2,654.00	37.8	0.24	0.66
	1936	1,444	14,348	20	14,368	400	950.00	9.9	0.27	0.66
	1937	2,104	146,273	14	146,287	1,133	3,636.72	69.5	0.63	1.72
	Total	25,958	657,164	34	657,198	3,311	10,290.20	25.8	0.13	.396
Municipal	1935	440	0	1	1	1	13.95	.022	.022	0.03
	1936	320	0	18	18	7	22.00	.050	.02	0.06
	1937	10,000	0	478	478	-(1)	-	.047	-(1)	-(1)
	Total	10,760	0	497	497	8	35.95	.462	.0007	0.33
Private	1932	800	0	1	1	0	26.35	.001	-	0.033
	1933	1,460	135,909	5	135,914	178	1,068.99	93.0	.12	0.730
	1934	89,184	671,290	1,062	672,352	1,831	5,990.26	7.50	.02	0.06
	1935	38,422	546,351	1,903	548,254	2,726	7,438.30	14.03	.07	0.19
	1936	28,219	455,638	1,258	456,896	3,057	8,658.51	16.01	.10	0.30
	1937	6,713	118,710	263	118,973	1,501	4,459.85	19.09	.22	0.66
	Total	164,798	1,927,898	4,492	1,932,390	9,293	27,642.26	11.73	.056	0.168
	GRAND TOTAL	202,441	2,782,648	5,023	2,787,671	13,168	39,639.85	13.76	.065	0.196

(1) Work on Municipal Lands in 1937 done by Agent - hence his time is charged to Supervision

Summary of Ribes eradication in Maryland, by Owner

Year	Acres	Number of Ribes Destroyed	Cultivated
Govt. 1936	185	74,000	0
Govt. 1937	740	153,566	0
Total	925	227,566	0
1933	430	51,550	0
1934	17,980	503,785	0
1935	14,000	151,503	0
1936	1,444	14,378	50
1937	2,101	116,573	14
Total	25,958	657,191	34
1935	140	0	1
1936	350	0	18
1937	10,000	0	148
Total	10,490	0	167
1935	800	0	1
1936	1,460	135,609	5
1937	82,184	671,320	1,065
1938	38,455	246,351	1,003
1939	50,519	455,636	1,350
1940	6,773	118,710	563
Total	194,708	1,357,608	4,442
Total	258,663	2,014,799	4,476

or principal lands in 1937 gone by agent - hence

TABLE 4 Concise Summary of Ribes Eradication in Maryland By Working, Project and Ownership from 1932 to 1937 Incl.

By Working	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Per Acre		
		Wild	Culti.	Total			Number Ribes	Number Man-Days	Cost
First	168,090	2,425,386	2937	2,428,323	9336	\$ 28,816.94	14.45	.055	\$.172
Second	25,129	305,503	1681	307,184	2,857	8,148.91	12.2	.115	.32
Third	9,222	51,759	405	52,164	945	2,674.00	5.6	.116	.33
Total	202,441	2,782,648	5,023	2,787,671	13,168	39,639.85	13.7	.065	.196
By Project									
WPA	67,380	1,052,318	2,481	1,054,799	7,934	23,262.04	15.7	.11	.34
ARA	650	158,161	0	158,161	372	1,056.34	243.3	.57	1.62
Semi Total									
WPA and ARA	68,030	1,210,479	2,481	1,212,960	8,360	24,318.38	17.8	.122	.36
PWA	127,436	1,190,850	2,529	1,193,379	3,589	13,863.62	9.3	.03	.10
CCC	6,175	381,319	12	381,331	1,273	1,273.00	60.8	.20	.20
Semi Total all									
Emergency									
Projects.	201,641	2,782,648	5,022	2,787,670	13,168	39,455.00	13.8	.065	.196
Regular	800	0	1	1	-	184.85	.001	-	.23
All Projects									
Total	202,441	2,782,648	5,023	2,787,671	13,168	39,639.85	13.7	0.065	.196
By Ownership									
Fed. Gov't	925	197,586	0	197,586	556	1,671.44	213.6	0.61	1.80
State	25,958	657,164	34	657,198	3,311	10,540.20	25.8	0.13	0.396
Municipal	10,760	0	497	497	8	35.95	.462	0.0007	0.33
Private	164,798	1,927,898	4492	1,932,390	9,293	27,642.26	11.73	0.056	0.168
Total	202,441	2,782,648	5023	2,787,671	13,168	39,639.85	13.7	0.065	0.196

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TABLE SHOWING WHITE PINE ACRES
PROTECTED FROM BLISTER RUST IN MARYLAND
BY YEARS 1932 to 1937

Year	Initial Work				Rework		Total Acreage Worked
	Federal Lands Agricultural Resettlement	State	City	Private	Total		
1932		A	A	537	537	-	537
1933	-	18	A	172	190	-	190
1934	-	A	A	60,380 (1)	60,380	44	31,444 *
1935		A	A	6,246 (2)	6,246	30,457	36,703
1936	100	A	A	4,396	4,496	31,794	36,290
1937	115	68	500	359	1,032	25,390	26,422
	215	86	500	72,080	72,881	87,685	131,586

*The figures 31,444 and 44 from H. E. Yost's Annual Report probably includes w. p. of 5% and over only.

A In 1932 and from 1934 to 1936, work on State and County land was included with Private work. This will be segregated later.

(2) In 1936 Report through error this was reported as 6,403 acres.

(1) In 1934, scattered pine also included. Of this area 31,444 acres were worked.

(3) The data on white pine in Mr. Yost's annual report for 1937 shows 81,983 acres of white pine found in the State, of which 44,262 acres represent pine over 5% (50 trees per acre) and 37,721 represent scattered pine under 50 trees per acre.

Year	Federal Land Agricultural Reclamation	State and City	Private
1932		A 185	237
1933		A 185	175
1934		A 185	60,380 (1)
1935		A 185	6,246 (2)
1936	100	A 185	14,380
1937	115	68,185 200	67,350
	215	85,185 200	42,080

A In 1932 and from 1934 to 1936, work on State and County lands segregated later.

(2) In 1936 Report through error this was reported as 6,247 acres
 (1) In 1936, scattered pine also included. Of the area 24,111
 (3) The data on white pine in Mr. Yeat's annual report for 1937
 of which 44,205 acres represent pine over 100 trees per acre.

TABLE I Summary of Ribes Eradication in 1937 By Working, Project and Ownership - North Carolina

By Working	Acreage Worked	Number of Ribes Destroyed			Number 8 hour man-days	Total Cost	Per Acre		
		Wild	Culti.	Total			Number Ribes	Number Man-Days	Cost
First	325,455	180,529	53,268	183,797	4,590	\$ 7,650.55	0.56	0.014	.023
Second	355,499	3,547	27,370	30,917	3,052	6,007.61	0.08	0.008	.017
Total	680,954	184,076	80,998	265,074	7,642	13,658.16(1)	0.38	0.012	0.02
By Project WPA	569,405	182,909	73,661	256,570	6,479	12,347.25	0.45	0.0114	0.022
CCC	111,549	1,167	7,337	8,504	1,163	1,310.91	0.07	0.0104	0.012
Totals	680,954	184,076	80,998	265,074	7,642	13,658.16(1)	0.38	0.0112	0.02
By Ownership									
Federal									
Nat'l For.	141,596	107,365	9,253	116,618	2,605	3,543.81	0.82	.019	0.024
Nat'l Park	14,285	3,909	0	3,909	263	792.88	0.27	.021	0.055
Total Federal	155,881	111,274	9,253	120,527	3,025	4,336.69	0.77	0.019	0.028
State									
City & County	160	0	0	0	1.0	7.47	-	0.003	0.047
Private	524,913	72,802	71,745	144,547	4,773	9,314.00	0.28	0.012	0.018
Total	680,954	184,076	80,998	265,074	7,642	13,658.16(1)	0.38	0.12	0.02

(1) Total cost for Eradication has been calculated by Mr. Teague to be \$5.00 less than amount given in Omnibus Table 4.

(1) Total cost for eradication has been calculated by Table II.

Total	Private	City & County	State
80,998,254	17,745,247	0	0

Total Federal	Natl. Park	Natl. For.
152,881,111	3,909	107,395

Ownership
Federal

Total	CCC	by Project WPA
80,998,254	1,164	182,909

Total	Wild	Cult.	Total
80,998,254	184,076	80,998,254	165,072
27,370,400	3,247	27,367,153	30,617
53,627,854	180,829	53,623,901	165,689

TABLE I Summary of Ribes Eradication in 1937 By Working Project

Status of Blister Rust Survey and Control Work
in North Carolina
December 31, 1937

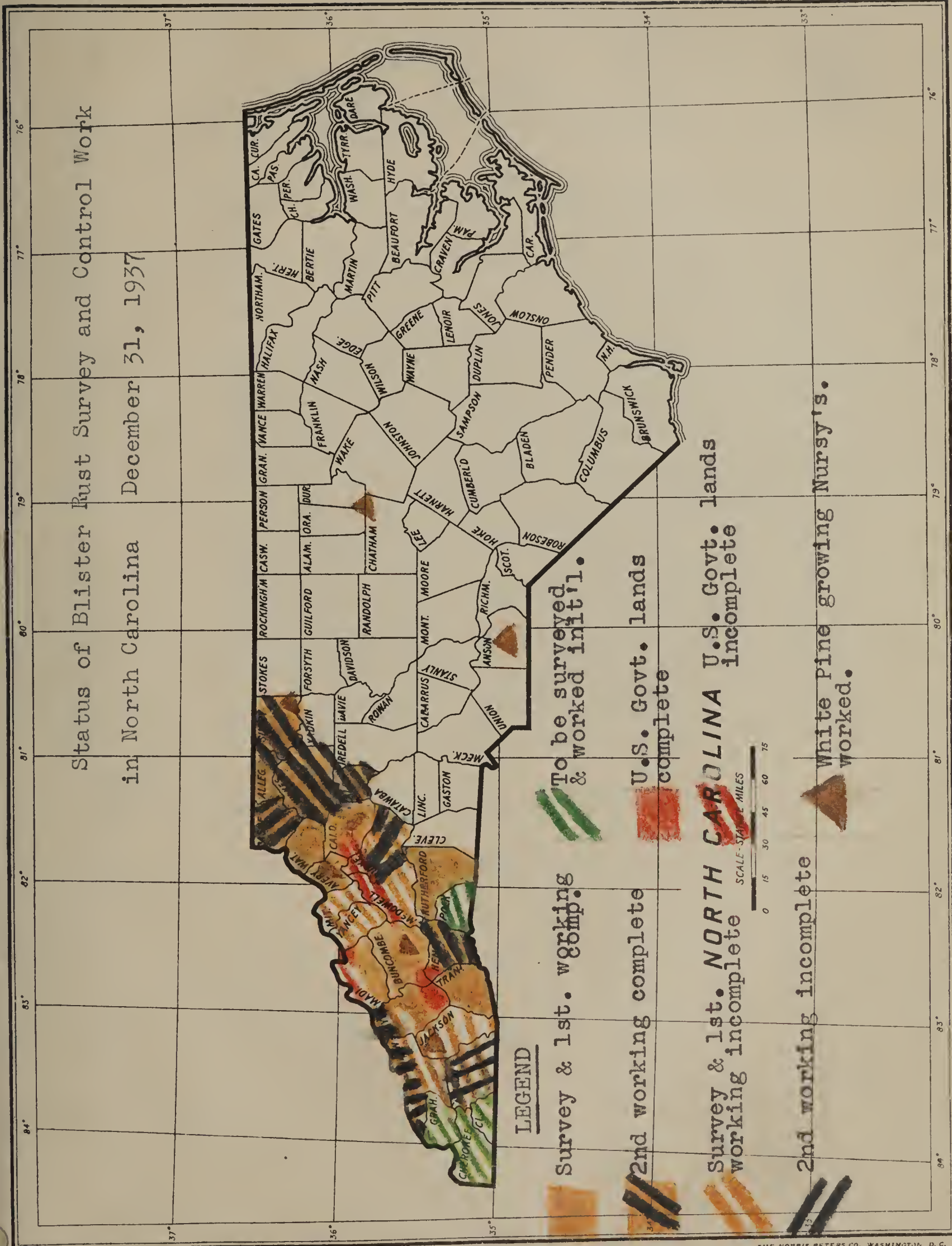


TABLE 2 Summary of Ribes Eradication in North Carolina, By Working, Project and Year for 1933 to 1937 Inclusive

Classification	Year	Acres Worked	Number of Ribes Destroyed			Total man- days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. of Ribes	No. of M-Days	Cost
W O R K I N G										
First	1933	29,570	360	0	360	415	\$ 1,828.48	0.012	0.014	.062
	1934	582,610	14,823	85,499	100,322	2,818	15,323.44	0.172	0.005	.026
	1935	572,960	147,954	108,989	256,943	7,884	22,337.27	0.45	0.014	0.039
	1936	760,467	321,160	313,232	634,392	12,046	26,367.70	0.83	0.016	0.035
	1937	325,455	180,529	53,628	234,157	4,590	7,650.55	0.72	0.014	0.024
	Total	2,271,062	664,826	561,348	1226,174	27,753	73,507.44	0.54	0.012	0.032
Second	1935	15,400	0	4,119	4,119	147	830.56	0.26	0.009	0.054
	1936	216,206	30,311	37,417	67,728	2,490	11,301.01	0.31	0.012	0.052
	1937	355,499	3,547	27,370	30,917	3,052	6,007.61	0.08	0.008	0.017
	Total	587,105	33,858	68,906	102,764	5,689	18,139.18	0.18	0.009	0.031
Total Both Workings		2,858,167	698,684	630,254	1,328,938	33,442	91,646.62(1)	0.46	0.012	0.032

TABLE 2 Summary of Ribes Production in North Carolina, 1933-1937

Classification	Year	Acres Harvested	Number of Ribes Leaves
WORKING			
First	1933	20,520	130
	1934	22,610	14,323
	1935	22,960	17,254
	1936	22,760	251,160
	1937	22,755	170,259
Total		2,521,062	464,856
Second	1935	22,457	0
	1936	22,506	30,211
	1937	22,755	31,272
Total		2,521,062	33,858
Both Working		2,521,062	508,714



Photo N. C. 200. Lumber sawed from logs cut on Elk Creek Lumber Co. land in Watauga County, North Carolina. This mill is one of 33 operating in this section and cuts 25,000 feet per day, of which 40% is white pine.

Photo by H. B. Teague

Table 2 (Continued) Summary of Ribes Eradication in North Carolina By Working, Project and Year from 1933 to 1937 Incl.

Classification	Year	Acres Worked	Number of Ribes Destroyed			Total man- days labor	Total Cost	Per Acre		
			Wild	Culti.	Total			Number Ribes	Number Man-Days	Cost
P R O J E C T										
Regular	1936	5,195	690	2,269	2,959	105	\$ 322.00	0.57	0.202	\$.062
W. P. A.	1935	241,189	138,936	71,303	210,239	6,743	14779.59	0.87	0.028	.061
	1936	971,478	350,781	348,380	699,161	14,431	37,346.71	0.72	0.014	.026
	1937	569,405	182,909	73,661	256,570	6,479	12,347.25	0.45	0.011	0.022
P. W. A.	Total	1,782,072	672,626	493,344	1,165,970	27,653	64,473.55	0.65	0.016	0.036
	1934	558,012	14,823	85,230	100,053	2,663	14,537.24	0.18	0.004	0.026
	1935	347,171	9,018	41,805	50,823	1,288	8,388.24	0.14	0.004	0.025
	Total	905,183	23,841	127,035	150,876	3,951	22,925.48	0.17	0.004	0.025
C. C. C.	1933	29,570	360	0	360	415	1,828.48	0.01	0.01	0.061
	1934	24,598	0	269	269	155	786.20	0.01	0.006	0.032
	1937	111,549	1,167	7,337	8,504	1,163	1,310.91	0.077	0.010	0.012
	Total	165,717	1,527	7,606	9,133	1,733	3,925.59	0.05	0.015	0.023
Total Emergency Program		2,852,972	697,994	627,985	1,325,979	33,337	\$91,324.62	0.46	.012	0.035
Total All Programs		2,858,167	698,684	630,254	1,328,938	33,342	\$91,646.62(1)	0.46	0.012	0.032
Y E A R										
	1933	29,570	360	0	360	415	1,828.48	0.01	0.01	0.061
	1934	582,610	14,823	85,499	100,322	2,818	15,323.44	0.17	0.0048	0.026
	1935	588,360	147,954	113,108	261,062	8,031	23,167.83	0.44	0.0136	0.039
	1936	976,673	351,471	350,649	702,120	14,536	37,668.71	0.709	0.015	0.038
	1937	680,954	184,076	80,998	265,074	7,642	13,658.16	0.389	0.011	0.20
Total All Years		2,858,167	698,684	630,254	1,328,938	33,442	\$91,646.62(1)	0.46	0.012	0.032

(1) This corrects an error of \$5.80 in Total Costs - Ribes Eradication 1933 - 1937 Inclusive, being less than figure in IVA by that amount.

that amount.

Corrects an error of \$5.80 in Total Costs - Ribes Wastage

All Years			
1937	80,250	100,000	180,250
1938	350,000	250,000	600,000
1939	115,100	115,250	230,350
1940	85,450	15,800	101,250
1941	0	20,500	20,500

Programs			
1937	1,350	650,250	651,600
1938	2,858,100	600,000	3,458,100
1939	2,852,000	600,000	3,452,000
1940	1,350	650,250	651,600
1941	0	20,500	20,500

C. C.			
1937	111,500	1,100	112,600
1938	24,500	0	24,500
1939	20,500	0	20,500
1940	11,800	0	11,800
1941	0	0	0

W. A.			
1937	1,785,000	650,000	2,435,000
1938	250,000	14,800	264,800
1939	250,000	65,000	315,000
1940	11,800	0	11,800
1941	0	0	0

P. A.			
1937	260,000	125,000	385,000
1938	270,000	350,000	620,000
1939	240,000	138,000	378,000
1940	71,300	0	71,300
1941	0	0	0

TOTAL			
1937	2,435,000	1,025,000	3,460,000
1938	3,458,100	1,025,000	4,483,100
1939	3,452,000	1,025,000	4,477,000
1940	11,800	0	11,800
1941	0	0	0

(continued) Summary of Ribes Wastage in North Carolina

TABLE 3 Summary of Ribes Eradication in North Carolina, By Ownership and Years

From 1933 to 1937 Inclusive

Ownership	Year	Acres	Number of Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. of Ribes	No. M- Days	Cost
Federal Govt.										
Nat'l For.	1933	27,560	227	0	227	403	\$ 1,627.65	0.008	0.015	0.059
	1934	24,598	269	0	269	155	786.20	0.01	0.006	0.032
	1936	29,332	242	2,651	2,893	160	474.08	0.099	0.005	0.016
	1937	141,596	107,365	9,253	116,618	2,605	3,543.81	0.82	0.018	0.025
	Total	223,086	108,103	11,904	120,007	3,323	6,431.74	0.54	0.015	0.029
Nat'l Park	1933	2,010	133	0	133	12	\$ 200.83	.066	.006	.10
	1937	14,285	3,909	0	3,909	263	792.88	0.27	.018	.055
	Total	16,295	4,042	0	4,042	275	993.71	0.25	.017	.061
Total Federal Lands		239,381	112,145	11,904	124,049	3,598	7,425.45	0.52	.015	.031
Municipal	1937	160	0	0	0	1	7.47	0	0.006	.047
	Total	160	0	0	0	1	7.47	0	0.006	.047
Private	1934	558,012	14,554	85,499	100,053	2,663	14,537.24	0.18	0.0048	.026
	1935	588,360	147,954	113,108	261,062	8,031	23,167.83	0.44	0.014	0.039
	1936	947,341	351,229	347,998	699,227	14,376	37,194.63	0.74	0.015	0.039
	1937	524,913	72,802	71,745	144,547	4,773	9,314.00	0.28	0.009	0.018
	Total	2,618,626	586,539	618,350	1,204,889	29,843	84,213.70	0.46	0.011	0.032
Grand Total		2,858,167	698,684	630,254	1,328,938	33,442	91,646.62	0.46	0.0117	0.032

TABLE 2

Summary of Rice Production in North Carolina, 1933-1957

From 1933 to 1957 Inclusive

Ownership	Year	Acres	Number of Rice Production	
			With	Total
Federal Govt.	1957	111,200	107,300	110,000
	1956	20,300	21,500	2,800
	1954	21,500	20,000	0
	1953	27,500	23,000	0
	Total	228,000	1,108,100	112,800
Nat'l Park	1957	5,000	100	0
	1953	14,200	3,000	0
	Total	19,200	3,100	0
	Total Federal Lands	229,300	112,100	112,800
Municipal	1957	100	0	0
	Total	100	0	0
Private	1957	258,000	14,500	100,000
	1956	200,000	117,500	201,000
	1955	207,300	217,000	200,000
	1954	221,000	22,000	117,000
	Total	2,019,000	200,100	1,200,000
Total		2,019,000	200,100	1,200,000

TABLE 4 Concise Summary of Ribes Eradication in North Carolina by Working, Project and Ownership

From 1933 to 1937 Inclusive

By Working	Acreage Worked	Number of Ribes Destroyed			Number 8 hour m-days	Total Cost	Number Ribes	Per Acre	
		Wild	Culti.	Total				No. of Man-Days	Cost
First	2,271,062	664,826	561,348	1,226,174	27,753	\$73,507.44	0.54	0.012	0.032
Second	587,105	33,858	68,906	102,764	5,689	18,139.18	0.18	0.009	0.031
Grand Total	2,858,167	698,684	630,254	1,328,938	33,442	\$91,646.62	0.46	0.012	0.032
By Project									
Regular	5,195	690	2,269	2,959	105	322.00	0.57	0.202	0.062
W. P. A.	1,782,072	672,626	493,344	1,165,970	27,653	64,473.55	0.65	0.016	0.036
P. W. A.	905,183	23,841	127,035	150,876	3,951	22,925.48	0.17	0.004	0.025
C. C. C.	165,717	1,527	7,606	9,133	1,733	3,925.59	0.05	0.015	0.023
Total Emergency Programs	2,852,972	697,994	627,985	1,325,979	33,337	\$91,324.62	0.46	0.012	0.035
Grand Tot.	2,858,167	698,684	630,254	1,328,938	33,442	\$91,646.62	0.46	0.012	0.032
By Ownership									
Nat'l Forest	223,086	108,103	11,904	120,007	3,323	6,431.74	0.54	0.015	0.029
Nat'l Park	16,295	4,042	0	4,042	275	993.71	0.25	0.017	0.061
Total Federal	239,381	112,145	11,904	124,049	3,598	\$7,425.45	0.52	0.015	0.031
Municipal	160	0	0	0	1	7.47	0	0.006	0.047
Private	2,618,626	586,539	618,350	1,204,889	29,843	84,213.70	0.46	0.011	0.032
Grand Total All Lands	2,858,167	698,684	630,254	1,328,938	33,442	\$91,646.62	0.46	0.012	0.032

Concise Summary of River Expedition in North Carolina

From 1953 to 1957 inclusive

[illegible]

TENNESSEE

TABLE I

Summary of Ribes Eradication in 1937 By Working, Project and Ownership

By Working	Acreage Worked	No. Ribes Destroyed			No. 8 hour man-days	Cost	Per Acre		
		Wild	Culti.	Total			No. Ribes	Man-Days	Cost
First	122,040	1,236,656	62,291	1,298,947	8328.1	\$14404.00	10.64	.068	\$0.118
Second	791	32,596	0	32,596	481.8	870.04	41.22	.609	1.09
Total	122,831	1,269,252	62,291	1,331,543	8809.9	\$15274.04	10.84	.071	\$0.124
By Project									
WPA & Tot.	122,831	1,269,252	62,291	1,331,543	8809.9	\$15274.04	10.84	.071	\$0.124
By Ownership									
Nat'l Forest(1)	47,045	182,712	75	182,787	1500.8	\$3173.76	3.88	.032	.067
State	-	-	-	-	-	-	-	-	-
Private	75,786	1,086,540	62,216	1148,756	7309.1	12100.28	15.15	.096	0.159
Total	122,831	1,269,252	62,291	1331,543	8809.9	15274.04	10.84	.071	0.124

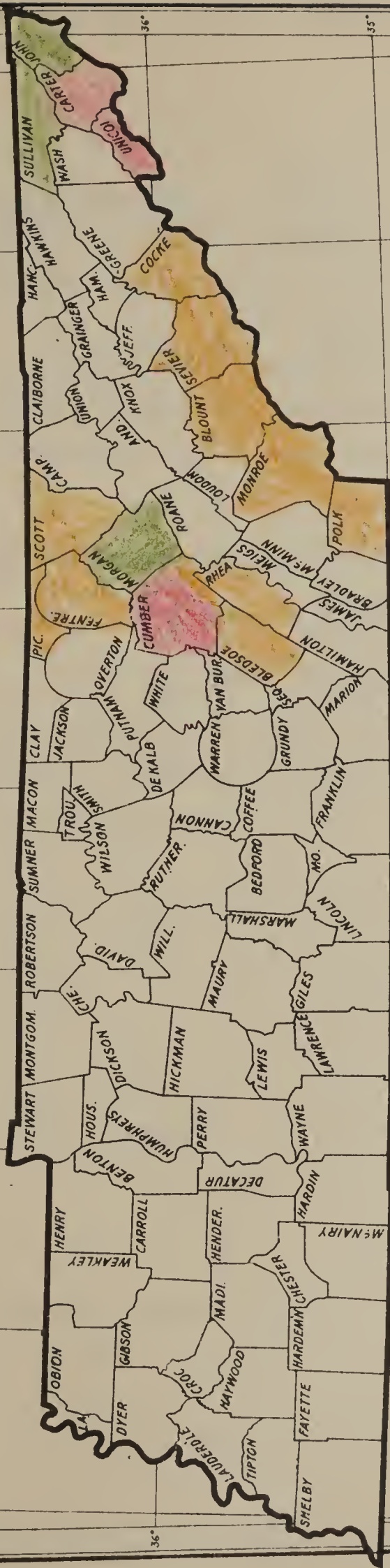
(1) The National Forest is the Cherokee now. This contains parts of the former Pisgah and Unaka National Forests lying in Tennessee, as well as that part of the former Cherokee which lay in Tennessee.



Photo N. C. 323. Young white pines seeded from nearby planted white pines near Mountain Home in Henderson County, North Carolina. Note cones on 1936 growth. - Pines seven years old.

Photo by H. B. Teague

Map Showing Status of White Pine Blister Rust Control
in Tennessee 1937



TENNESSEE

SCALE-STATUTE MILES
0 10 20 30 40 50

LEGEND
Counties Being Worked
Counties Completed
Counties to Be Worked

TABLE 2 Summary of Ribes Eradication 1933 - 1937 Inclusive, By Working, Project and Ownership

By Working	Acreage Worked	No. Ribes Destroyed			Number 8 hour m-days	Total Cost	Per Acre		
		Wild	Culti.	Total			No. Ribes	man days	Cost
First	382,631	2,860,515	93,870	2,954,385	16,074.1	\$34,501.19	7.27	0.042	\$0.090
Second	3,598	144,940	0	144,940	755.8	1,444.29	40.28	0.209	0.401
Total	386,229	3,005,455	93,870	3,099,325	16,829.9	\$35,945.48 ⁽¹⁾	8.02	0.043	0.093
By Project									
WPA	240,533	2,727,669	91,812	2,819,481	14,656.9	25,433.65	11.72	0.060	\$0.106
FWA	122,340	166,695	1,914	168,609	1,439.0	8,650.96	1.37	0.013	0.070
CCC	23,356	111,091	144	111,235	734.0	1,860.87	4.76	0.025	0.079
Total	386,229	3,005,455	93,870	3,099,325	14,829.9	35,945.48	8.02	0.043	0.093
By Ownership									
N. For'	68,770	504,523	3,235	507,758	1,989.9	4,776.10	7.38	0.021	0.069
N. Park	1,825	2	14	16	198.0	200.15	0.009	0.108	0.109
Other Fed.	0	0	0	0	0	0	0	0	0
Sub-Total									
Federal	70,595	504,525	3,249	507,774	2,187.9	4,976.25	7.19	0.031	0.070
State	0	0	0	0	0	0	0	0	0
Municipal	0	0	0	0	0	0	0	0	0
Private	315,634	2500,930	90,621	2,591.551	14,642.0	30,969.23	8.21	0.046	0.098
Total	386,229	3005,455	93,870	3,099,325	16,829.9	35,945.48	8.02	0.043	0.093

(1) This "Cost" is \$19.00 more than cost given in Omnibus Table IVA, an error being found in Table IVA which occurred in 1936.

TENNESSEE

TABLE 3 Summary of Ribes Eradication By Ownership and by Years 1933 to 1937 Inclusive

Ownership	Year	Acres	No. Ribes Destroyed			Total M-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. Ribes	No. M-Days	Cost
National Forests	1933	8,895	62,830	26	62,856	184.00	\$ 848.68	7.06	0.020	.095
	1934	11,970	185	0	185	216.00	633.44	0.015	.018	.053
	1936	860	258,796	3,134	261,930	89.15	120.22	304.57	.103	.139
	1937	47,045	182,721	75	182,787	1500.75	3,173.76	3.88	.032	.067
	All Years	68,770	504,523	3,235	507,758	1989.9	4,776.10	7.38	0.021	.069
National Parks	1933	1,825	2	14	16	198.0	200.15	0.009	0.108	0.109
Total Federal	All Years	70,595	504,525	3,249	507,774	2187.9	4,976.25	7.19	0.031	0.070
Private Lands(1)	1934	89,618	63,856	1,255	65,111	1014.0	6,338.38	.726	0.011	0.070
	1935	48,647	321,636	2,840	324,476	1650.	4,473.77	6.67	0.034	0.092
	1936	101,583	1,028,898	24,310	1053,208	4669.	8,056.80	10.36	0.046	0.079
	1937	75,786	1,086,540	62,216	1148,756	7309	12,100.28	15.15	0.096	0.159
	All Years	315,634	2,500,930	90,621	2,591,551	14642.0	30,969.23	8.21	0.046	0.098
All Lands	Grand Tot.	386,229	3,005,455	93,870	3,099,325	16829.9	35,945.48	8.02	0.043	0.093

(1) No municipal or State land have been worked in 1936 or 1937; if worked prior to that time data has been included with Private lands.

TABLE 4 Summary of Ribes Eradication in Tennessee by Projects - By Years 1933 - 1937 Inclusive

Project	Year	Acres	Number of Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			Number Ribes	Number Man-Days	Cost
W. P. A.	1935	15,439	192,845	2,077	194,922	1,108	\$ 2,001.29	12.6	0.072	\$0.144
	1936	102,263	1,265,572	27,444	1,293,016	4,739	8,158.32	12.6	0.046	0.08
	1937	122,831	1,269,252	62,291	1,331,543	8,809.9	15,274.04	10.84	0.071	0.124
	Total	240,533	2,727,669	91,812	2,819,481	14,656.9	\$25,433.65	11.72	0.060	\$0.106
C. C. C. and E. C. W.	1933	10,720	62,832	40	62,872	382	1,048.83	5.86	0.035	0.098
	1934	12,050	14,610	0	14,610	297	720.09	1.13	0.024	0.059
	1935	406	11,527	104	11,631	36	73.25	28.65	0.088	0.225
	1936	180	22,122	0	22,122	19.	18.70	122.9	0.105	0.104
	Total	23,356	111,091	144	111,235	734	\$ 1,860.87	4.76	0.025	0.079
P. W. A.	1934	89,538	49,431	1,255	50,686	933	6,251.73	0.56	0.014	0.069
	1935	32,802	117,264	659	117,923	506	2,399.23	3.59		0.073
	Total	122,340	166,695	1,914	168,609	1,439.	\$ 8,650.96	1.37	0.013	0.070
All Projects										
Grand Total		386,229	3,005,455	93,870	3,099,325	16,829.9	\$35,945.48	8.02	0.043	0.093

TABLE 4
Summary of Ribes eradication in Tennessee by Type

Project	Year	Acres	Number of Ribes Destroyed	Cost	Total
W. P. A.	1935	15,433	125,875	5,045	130,920
	1936	105,265	1,262,575	52,744	1,320,319
	1937	125,871	1,269,225	52,281	1,321,376
Total		346,569	2,657,675	109,070	2,766,745
C. C. and W. C.	1933	10,750	65,835	40	65,875
	1934	15,050	14,210	0	14,210
	1935	140	11,527	104	11,631
	1936	180	25,125	0	25,125
Total		316	111,697	144	111,841
P. W. A.	1934	89,238	14,421	1,225	90,684
	1935	25,805	114,504	0	140,309
Total		115,043	128,925	1,225	129,173
Grand Total		561,658	2,786,600	110,439	2,897,039

TABLE 5

Summary of Ribes Eradication in Tennessee By Years 1933 to 1937 Inclusive

Year	Acreage Worked		No. Ribes Destroyed			Total Man- Days Labor	Total Cost	Per Acre		
	Total	Initially	Wild	Culti.	Total			No. of Ribes	No. of Man- Days Laborers	Cost
1933	10,720	10,720	62,832	40	62,872	382	\$ 1,048.83	5.86	0.035	\$0.098
1934	101,588	101,588	64,041	1255	65,296	1230	6,971.82	0.64	0.012	0.068
1935	48,647	47,768	321,636	2840	324,476	1650	4,473.77	6.67	0.034	0.092
1936	102,443	100,515	1287,694	27444	1315,138	4758	8,177.02	12.84	0.046	0.08
1937	122,831	122,040	1269,252	62291	1331,543	8809.9	15,274.04	10.84	0.071	0.124
Total	386,229	382,631	3005,455	93870	3099,325	16829.9	\$35,945.48	8.62	0.043	\$0.093

TABLE 2

Summary of Riparian Vegetation in Tennessee by Year

Year	Acreses Formed		Ac. Riparian Destroyed	
	Total	Initially	Wild	Cultivated
1933	10,750	10,750	0	0
1934	101,588	101,588	0	0
1935	18,645	18,645	0	0
1936	102,115	100,715	1,400	0
1937	155,821	155,810	1,011	0
Total	328,539	328,521	2,411	0

TABLE I Summary of Ribes Eradication in 1937 in Virginia, By Working, Project and Ownership

By Working	Acreage Worked	Number of Ribes Destroyed			Total M-Days Labor	Total Cost	Per Acre		
		Wild	Culti.	Total			No. of Ribes	No. of Man-Days	Cost
First	153,502	331,647	5,891	337,538	5,916.8	\$ 9,923.70	2.2	.013	\$0.064
Second	13,183	745,660	0	745,660	6,965.1	11,701.20	56.5	.528	0.089
Third	3,380	18,937	0	18,937	638.4	1,016.81	5.6	.188	0.301
Total Both Workings	170,065	1,096,244	5,891	1,102,135	13,520.3	22,641.71	6.4	.079	\$0.133
By Proj. Regular	8	258	0	258	11.7	27.65	32.2	1.46	3.44(1)
W. P. A.	169,927	1,095,549	5,891	1,101,440	13,468.1	22,526.14	6.48	0.079	0.132
C. C. C.	130	437	0	437	40.5	87.92	3.36	0.311	0.674
Emergency Projects	170,057	1,095,986	5,891	1,101,877	13,508.6	22,614.06	6.47	0.080	0.133
Total All Proj.	170,065	1,096,244	5,891	1,102,135	13,520.3	22,641.71	6.47	0.079	0.133
By Ownership									
Nat'l Forest	41,388	960,374	370	960,744	10,302.5	16,522.98	23.3	0.249	0.399
Nat'l Park	615	6,381	0	6,381	282.5	494.48	10.4	0.460	0.820
Total Federal	42,003	966,755	370	967,125	10,585.0	17,017.46	23.0	0.258	0.405
State	0	0	0	0	0	0	0	0	0
Municipal	85	0	0	0	0	0	0	0	0
Private	127,977	129,489	5,521	135,010	2,935.3	5,624.25	1.05	0.023	0.439
	170,065	1,096,244	5,891	1,102,135	13,520.3	\$22,641.71	6.47	0.079	0.133

(1) The cost of \$3.44 per acre seems high, but it should be considered that this was the value of the Girl Scouts labor who volunteered to do the eradication and who donated their service.

TABLE I
Summary of Ribes eradication in 1957 in Virginia, by

By Working	Acres Worked	Number of Ribes Destroyed	Total	
			Wild	Cult.
First	153,502	321,017	5,891	337,538
Second	13,183	715,660	0	715,660
Third	3,330	818,937	0	818,937
Total Both	170,015	1,096,214	5,891	1,102,135
By Proj. Regular				
W. P. A.	109,927	1,096,214	5,891	1,101,110
C. C. C.	130,000	565,137	0	695,137
Emergency Projects				
	170,015	1,096,214	5,891	1,101,877
Total All Projects	170,015	1,096,214	5,891	1,102,135
By Ownership				
Nat'l Forest	11,388	960,371	370	960,741
Nat'l Park	615,000	1,638,1	0	1,638,1
Total Federal	126,002	960,752	370	961,122
State	0	0	0	0
Municipal	0	0	0	0
Private	127,277	127,489	5,521	133,010
	170,015	1,096,214	5,891	1,102,135

(1) The cost of \$3.44 per acre seems high, but it should be noted who volunteered to do the eradication and who donated their

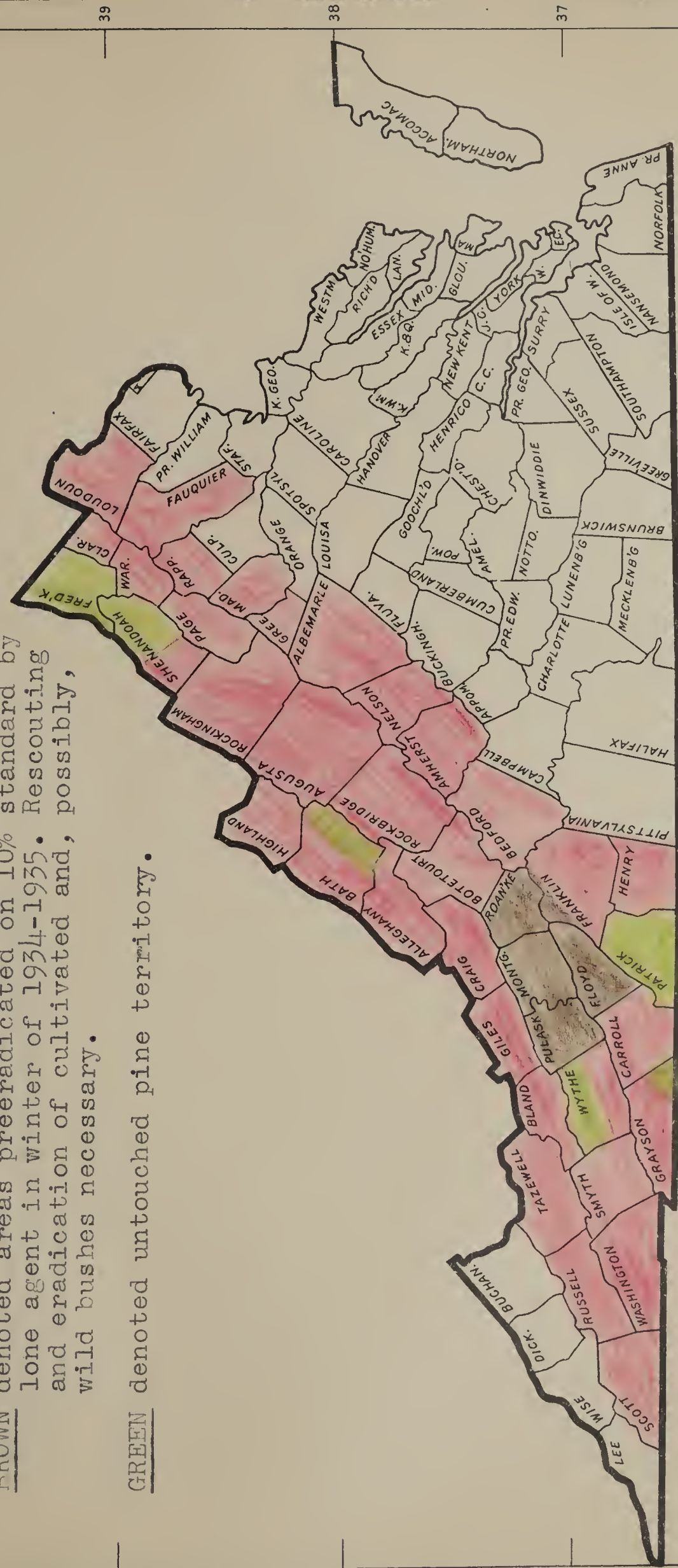
December 31, 1937

NON-FEDERAL LANDS

RED denotes Pre-eradication and eradication completed.

BROWN denoted areas preeradicated on 10% standard by lone agent in winter of 1934-1935. Rescuing and eradication of cultivated and, possibly, wild bushes necessary.

GREEN denoted untouched pine territory.



SCALE-STATUTE MILES

0 10 20 30 40 50

FEDERAL LANDS

December 31, 1937

Red areas denote remaining Federal lands only partially preeradicated and eradicated.

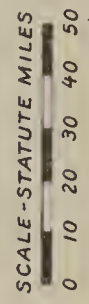
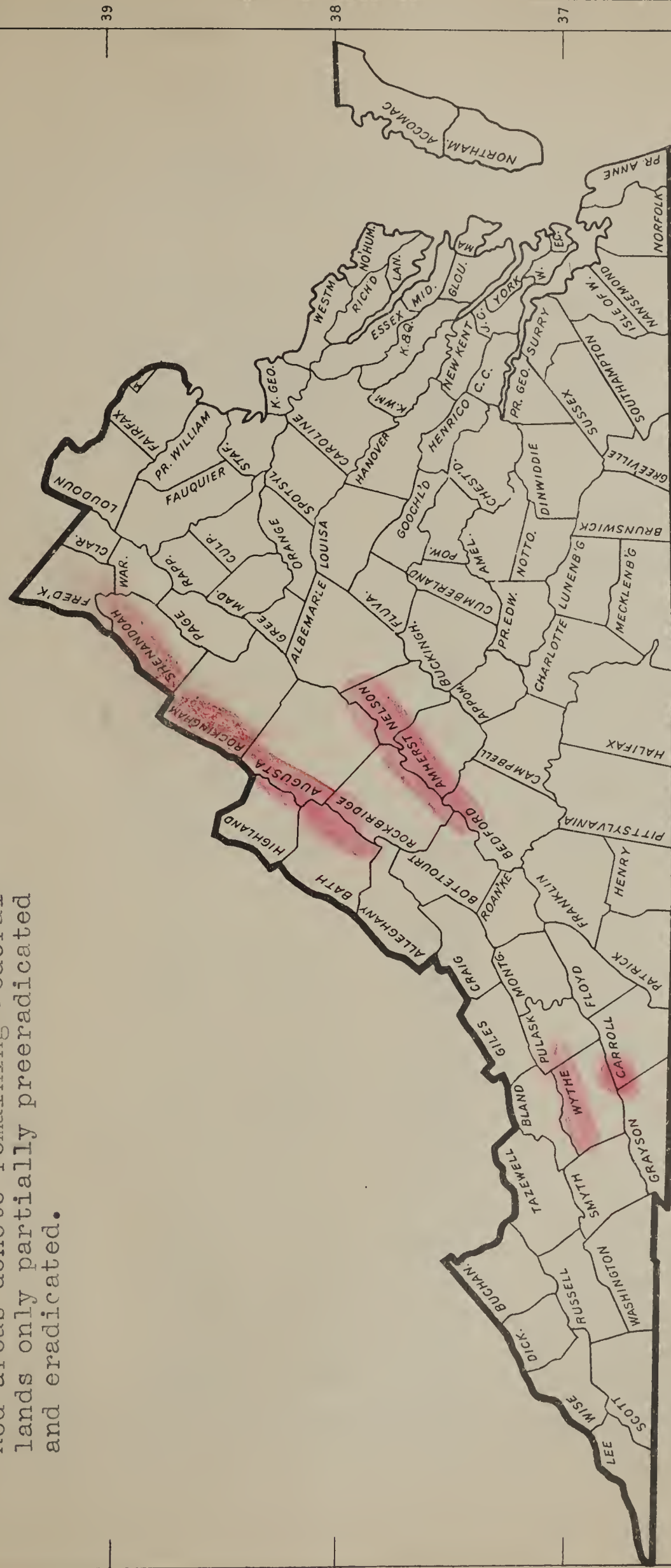


TABLE 2

Summary of Ribes Eradication in Virginia by Working, Project and Year

-71-

From 1928 to 1937 Inclusive

Classification	Year	Acres	Number of Ribes Destroyed			Total M-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. of Ribes	No. of M-Days	Cost
W O R K I N G First	1928-31	4,187	13,584	2	13,586	-	\$ 384.66	3.2	-	0.092
	1932	2,248	16,281	0	16,281	-	173.51	7.2	0	0.077
	1933	19,818	253,172	0	253,172	2,761	8,937.53	12.8	0.14	0.450
	1934	104,957	1,015,674	13,925	1,029,599	11,308.0	29984.35	9.8	0.107	0.284
	1935	92,327	1,227,194	8,910	1,236,104	13,310.	30,971.67	13.4	0.144	0.335
	1936	101,047	867,120	17,925	885,045	9,757.5	16,621.38	8.8	0.096	0.165
	1937	153,502	331,647	5,891	337,538	5,916.8	9,923.70	2.2	0.013	0.064
	Total	478,086	3,724,672	46,653	3,771,325	43,053.3	\$96,996.80	7.9	.090	.202
Second	1932	600	19,993	0	19,993	-	50.00	33.3	0	.083
	1933	2,950	8,873	0	8,873	150.0	336.05	3.0	0.051	.114
	1934	3,669	39,076	0	39,076	576.0	776.58	10.6	0.157	.212
	1935	491	87,576	53	87,629	356.0	749.38	177.9	0.725	1.50
	1936	6,905	143,591	0	143,591	2,575.5	4,403.01	20.8	0.373	.642
	1937	13,183	745,660	0	745,660	6,965.1	11,701.20	56.5	0.528	0.89
	Total	27,798	1,044,769	53	1,044,822	10,622.6	\$18,016.22	37.6	.382	0.649
Third	1937	3,380	18,937	0	18,937	638.4	1,016.81	5.6	0.188	0.301
	Total	3,380	18,937	0	18,937	638.4	1,016.81	5.6	0.188	0.301
All Workings	Total	509,264	4,788,378	46,706	4,835,084	54,314.3	\$116,029.83	9.5	0.107	0.228

TABLE 2 (Continued) Summary of Ribes Eradication in Virginia by Working, Project and Year
From 1928 to 1937 Inclusive

Classification	Year	Acres	Number of Ribes Destroyed			Total No. of M-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. of Ribes	No. of M-Days	Cost
P R O J E C T										
Regular	1928-'31	4,187	13,584	2	13,586	-	\$ 384.66	3.2	-	\$0.092
	1932	2,848	36,274	0	36,274	-	223.51	12.7	-	0.078
	1933	2,591	6,516	0	6,516	3.5	131.25	2.5	0.013	0.051
	1936	600	3,000	0	3,000	60.5	152.00	5.0	0.101	0.253
	1937	8	258	0	258	11.7	27.65	32.2	1.463	3.44
	Total	10,234	59,632	2	59,634	107.2	919.07	5.83	0.010	0.090
W. P. A. Including Soil Conservation Ser.	1935	41,379	143,517	1636	145,153	3,375.0	7,735.51	3.50	0.077	0.177
	1936	104,360	904,199	17,919	922,118	10,118.5	16,184.29	8.83	0.097	0.155
	1937	169,927	1095,549	5,891	1,101,440	13,468.1	22,526.14	6.48	0.079	0.132
	Total	315,666	2143,265	25,446	2,168,711	26,961.6	46,445.94	6.85	0.085	0.147
P. W. A.	1934	92,584	408,474	13,925	422,399	4,132.0	19,128.29	4.6	0.044	0.207
	1935	31,816	311,574	7,302	318,876	1,339.0	7,337.02	10.20	0.042	0.230
	Total	124,400	720,048	21,227	741,275	5,471.0	26,465.31	5.16	0.044	0.212
C. C. C.	1933	20,177	255,529	0	255,529	2,876.0	9,142.33	12.7	0.142	0.453
	1934	16,042	646,276	0	646,276	7,752.0	11,632.64	40.3	0.483	0.724
	1935	19,623	859,679	25	859,704	8,952.0	16,648.52	43.8	0.456	0.848
	1936	2,992	103,512	6	103,518	2,154.0	4,688.10	34.6	0.719	0.57
	1937	130	437	0	437	40.5	87.92	3.36	0.311	0.674
	Total	58,964	1,865,433	31	1,865,464	21,774.5	42,199.51	31.7	0.370	0.716
Tot. Emergency Program		449,030	4,728,746	46,704	4,775,450	54,207.1	115,110.76	9.5	0.108	0.230
GRAND TOTAL		509,264	4,788,378	46,706	4,835,084	54,314.3	\$116,029.83	9.5	0.107	0.228
Y E A R										
	1928-'31	4,187	13,584	2	13,586	-	384.66	3.24	-	0.092
	1932	2,848	36,274	0	36,274	-	223.51	12.77	-	0.078
	1933	22,768	262,045	0	262,045	2,911.0	9,273.58	11.50	0.128	0.407
	1934	108,626	1,054,750	13,925	1,068,675	11,884.0	30,760.93	9.84	0.109	0.294
	1935	92,818	1,314,770	8,963	1,323,733	13,666.0	31,721.15	14.26	0.147	0.341
	1936	107,952	1,010,711	17,925	1,028,636	12,333.0	21,024.39(1)	9.53	0.114	0.202
	1937	170,065	1,096,244	5,891	1,102,135	13,520.3	22,641.71(2)	6.44	0.079	0.132
	Total	509,264	4,788,378	46,706	4,835,084	54,314.3	\$116,029.83	9.5	0.107	0.228

(1) This is \$800.00 less than reported in 1936 Omnibus Table IV, due to wrongful inclusion in 1936 of amount paid from Regular Approp - which should have been charged to supervision.

(2) This includes \$27.65 credited to Girl Scouts labor which through mistake was included by Mr. Luce in "All Other Expend." in Omnibus Table IV of 1937 annual report.

TABLE 2 (Continued) Summary of Ribes Eradication in Virginia by Year
From 1928 to

Classification	Year	Acres	Number of Ribes Leaves
Regular	1928-31	4,187	15,204
	1932	2,843	11,302,274
	1933	2,521	6,212
	1936	1,600	2,000
	1937	3	258
	Total	10,271	28,682
Conservation Ser. 1936	1936	104,320	404,199
	1937	169,627	100,214
	Total	273,947	504,413
F. W. A.	1934	12,012	616,276
	1935	19,622	669,273
	1936	2,922	103,212
	1937	130	137
	Total	34,686	1,392,898
C. C. C.	1933	50,117	252,259
	1934	12,012	616,276
	1935	19,622	669,273
	1936	2,922	103,212
	1937	130	137
	Total	84,803	1,654,157
Tot. Emergency Program	1933	50,117	252,259
	1934	12,012	616,276
	1935	19,622	669,273
	1936	2,922	103,212
	1937	130	137
	Total	84,803	1,654,157
Y. F. A. R.	1928-31	4,187	15,204
	1932	2,843	11,302,274
	1933	2,521	6,212
	1936	1,600	2,000
	1937	3	258
	Total	10,271	28,682

(1) This is \$300.00 less than reported in 1936 annual report. (2) This includes \$2,000,000 which should have been charged to supervision. (3) This includes \$2,000,000 which should have been charged to supervision. (4) This includes \$2,000,000 which should have been charged to supervision. (5) This includes \$2,000,000 which should have been charged to supervision.

Table 3

Summary of Ribes Eradication in Virginia by Ownership and Years

Ownership	Year	Acres	No. Ribes Destroyed			Total M-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			Number Ribes	Number M-Days	Cost
Federal Government										
Nat'l Forests										
	1928-1931	4,187	13,584	2	13,586	-	\$ 384.66	3.2	-	\$0.092
	1932	1,335	26,073	0	26,073	-	145.40	19.5	-	0.109
	1933	9,301	7,332	0	7,332	-	1,225.36	0.78	-	0.132
	1934	7,148	26,027	0	26,027	1,050.0	1,528.92	3.64	0.147	0.213
	1935	6,912	9,359	0	9,359	403.5	1,096.77	1.35	0.058	0.158
	1936	17,287	349,917	1,008	350,925	2,966.0	5,174.59	20.3	0.171	0.299
	1937	41,388	960,374	370	960,744	10,302.5	16,522.98	23.3	0.249	0.399
	Total	87,558	1,392,666	1,380	1,394,046	14,722.0	26,078.68	15.9	0.168	0.298
National Park										
	1933	3,958	243,240	0	243,240	-	7,656.02	61.5	-	1.933
	1934	6,949	605,224	0	605,224	6,534	9,305.08	87.0	0.940	1.338
	1935	12,711	850,345	0	850,345	8,548.5	15,551.75	66.8	0.673	1.223
	1936	3,369	110,246	6	110,252	2,341.0	5,620.72	32.7	0.695	1.67
	1937	615	6,381	0	6,381	282.5	494.48	10.4	0.460	0.820
	Total	27,602	1,815,436	6	1,815,442	17,706.0	\$38,628.05	65.8	0.618	\$1.40
Semi Total All Federal Lands										
		115,160	3,208,102	1,386	3,209,488	32,428.0	64,706.73	27.8	0.281	0.562
Municipal (2)										
	1936	600	3,000	0	3,000	60.5	150.00	5	0.10	0.25
	1937(1)	85	0	0	0	0	0	0	0	0
	Total	685	3,000	0	3,000	60.5	150.00	4.38	0.082	0.219
Private Lands										
	1932	1,513	10,201	0	10,201	-	78.11	6.7	-	0.51
includes some	1933	9,509	11,473	0	11,473	2,911	392.20	1.21	0.306	0.041
State and	1934	94,529	423,499	13,925	437,424	4,300	19,926.93	4.62	0.055	0.211
Municipal from	1935	73,195	455,066	8,963	464,029	4,714	15,072.53	6.34	0.064	0.206
1932 to 1935	1936	86,696	547,548	16,911	564,459	6,965.5	10,079.08	6.52	0.080	0.124
inclusive	1937	127,977	129,489	5,521	135,010	2,935.3	5,624.25	1.05	0.023	0.044
	Total	393,419	1,577,276	45,320	1,622,596	21,825.8	51,173.10	4.15	0.056	0.130
All Lands	Grand Total	509,264	4,788,378	46,706	4,835,084	54,314.3	\$116,029.83	9.5	0.107	0.228

(1) In 1937 Municipal Lands were worked by an agent, whose salary is charged to Supervision, not to Eradication

(2) Some Municipal land was worked prior to 1936, but data for such now included with Private Lands has not been segregated

segregated

(2) Some municipal land was worked prior to 1937, but data not available.

(1) In 1937 municipal lands were worked by an agent, whose name is not available.

All Lands Grand Total				
1937	127,217	1,577,278	47,370	1,751,865
Inclusive	1937	127,217	1,577,278	47,370
1935 to 1937	1935	127,217	1,577,278	47,370
Municipal from	1935	127,217	1,577,278	47,370
State and	1935	127,217	1,577,278	47,370
includes some	1935	127,217	1,577,278	47,370
Private Lands	1935	127,217	1,577,278	47,370

Total				
1937	87	3,000	0	3,087
Municipal (2)	1937(1)	87	0	3,000
Federal Lands	1937	115,160	2,508,108	1,786
Gemi Total All	1937	115,160	2,508,108	1,786

Total				
1937	3,302	1,815,436	0	1,818,738
1935	3,302	1,815,436	0	1,818,738
1934	12,711	850,315	0	850,315
1933	6,919	605,254	0	605,254
1932	3,252	213,210	0	213,210
National Park	1932	3,252	213,210	0

Total				
1937	87,558	1,395,608	1,380	1,397,318
1935	11,388	960,271	370	961,029
1934	17,287	319,917	1,008	320,925
1933	6,912	9,359	0	9,359
1932	7,148	26,027	0	26,027
1931	9,301	7,332	0	7,332
1930	1,332	28,073	0	28,073
1928-1931	4,187	13,584	2	13,586
Natl Forests	1928-1931	4,187	13,584	2
Federal Government	1928-1931	4,187	13,584	2

Ownership Year Acres No. Rides Destroyed Wild Cult.

Summary of Rides Destruction in 1937

Table 3

TABLE 4 Concise Summary of Ribes Eradication in Virginia by Working, Project and Ownership
 From 1928 to 1937 Inclusive

Classification	Acres	Number of Ribes Destroyed			Total Man-Days Labor	Total Cost	Number Ribes	Man- Days	Cost
		Wild	Culti.	Total					
W O R K I N G									
First	478,086	3,724,672	46,653	3,771,325	43,053.3	\$ 96,996.80	7.9	0.090	0.202
Second	27,798	1,044,769	53	1,044,822	10,622.6	18,016.22	37.6	0.382	0.649
Third	3,380	18,937	0	18,937	638.47	1,016.81	5.6	0.188	0.301
Total	509,264	4,788,378	46,706	4,835,084	54,314.3	116,029.83	9.5	0.107	0.228
P R O J E C T. Reg- ular	10,234	59,632	2	59,634	107.2	919.07	5.83	0.010	0.090
WPA	315,666	2,143,265	25,446	2,168,711	26,961.6	46,445.94	6.85	0.085	0.147
PWA	124,400	720,048	21,227	741,275	5,471.0	26,465.31	5.96	0.044	0.212
CCC	58,964	1,865,433	31	1,865,464	21774.5	42,199.51	31.7	0.370	0.716
Total	509,264	4,788,378	46,706	4,835,084	54,314.3	\$116,029.83	9.5	0.107	0.228
OWNERSHIP									
National For.	87,558	1,392,666	1,380	1,394,046	14,722.0	26,078.68	15.9	0.168	0.298
" Parks	27,602	1,815,436	6	1,815,442	17,706.0	38,628.05	65.8	0.168	1.40
Total Federal lands	115,160	3,208,102	1,386	3,209,488	32,428.0	64,706.73	27.8	0.281	0.562
State	Included with Private if any work was carried on								
Municipal (1)	685	3,000	0	3,000	60.5	150.00	4.38	0.082	0.219
Private	393,419	1,577,276	45,320	1,622,596	21,825.8	51,173.10	4.13	0.056	0.219
Total	509,264	4,788,378	46,706	4,835,084	54,314.3	\$116,029.83	9.5	0.107	0.228

(1) Municipal lands prior to 1936 were included under one head with Private lands.

TABLE II


Concise Summary of Rides Production in Virginia by
From 1928 to 1937

Classification		Acres		Number of Rides Destroyed	
				Wild	Cult.
				Total	Total
WORKING	First	148,086	3,724,675	148,086	3,724,675
	Second	27,798	1,011,769	27,798	1,011,769
	Third	3,380	18,937	3,380	18,937
	Total	179,264	4,755,381	179,264	4,755,381
P R O J E C T . R e s . near	WPA	115,160	2,303,102	115,160	2,303,102
	PWA	124,400	2,143,262	124,400	2,143,262
	CCC	58,994	1,065,433	58,994	1,065,433
	Total	298,554	5,511,800	298,554	5,511,800
OWNERSHIP					
National For.		87,528	1,302,666	87,528	1,302,666
Parks		27,602	1,812,436	27,602	1,812,436
Total Federal Lands		115,130	2,303,102	115,130	2,303,102
State					
Municipal		(1)	3,000	(1)	3,000
Private		193,419	1,577,276	193,419	1,577,276
Total		308,549	4,783,378	308,549	4,783,378

Included with Private if any work was carried on

(1) Municipal lands prior to 1928 were included under one item with


t showing Ribes per acre and Man-days per acre for Virginia by project
acreage per acre for Virginia by projects and acreage per acre for state
1937.


Reg. & Coop. 


Data upon which chart is based.

Project	Ribes Per Acre	Man Days Per A.
Reg. & Coop.	32.5	1.46
W. P. A.	7.99	.10
C. C. C.	3.36	.31
S. C. S.	.01	.04
Summary	6.48	.08

Ribes Per Acre

 W.P.A.

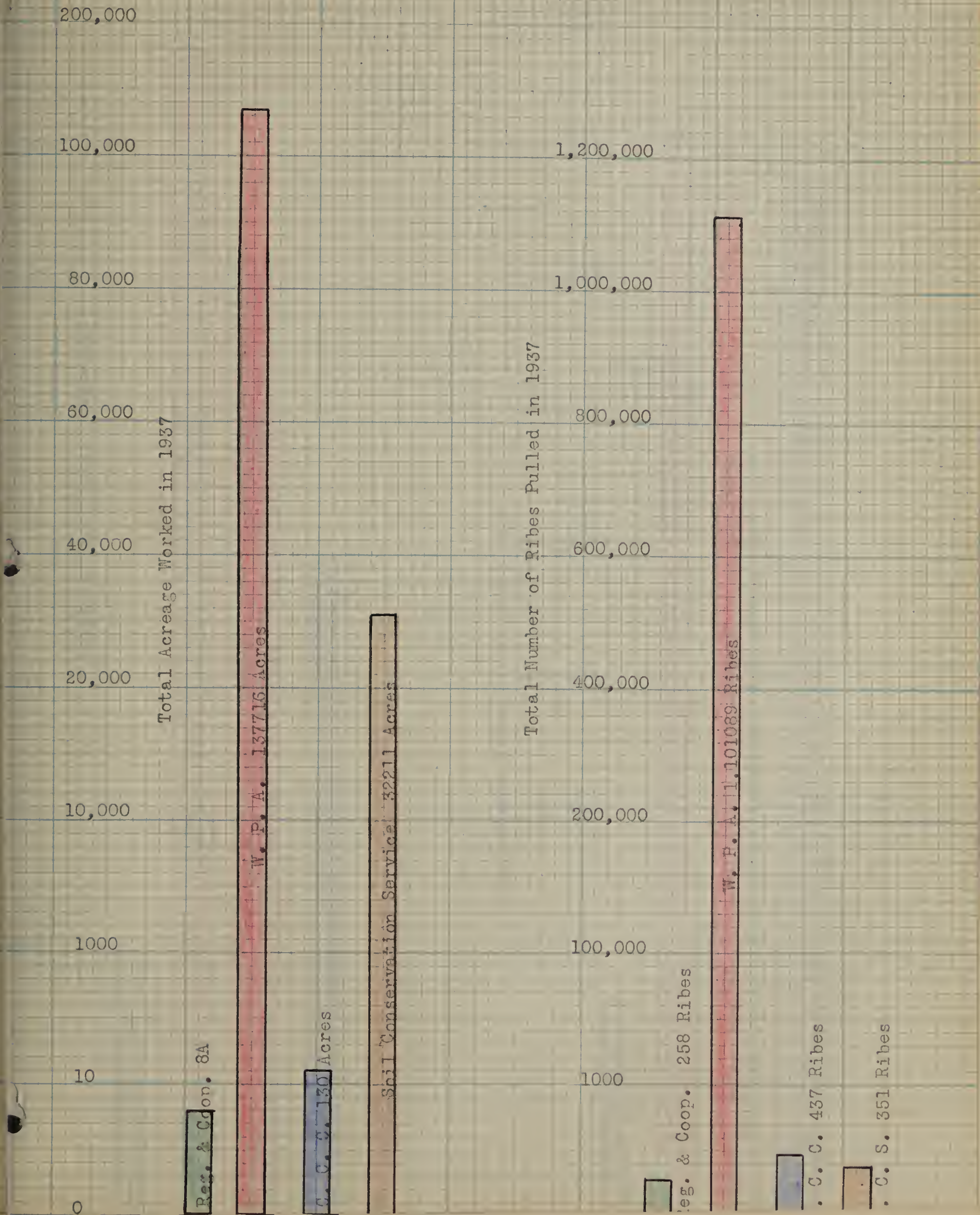
 C.C.C.

S.C.S.  .1

Man-Days per Acre

1.0 1.2 1.4 1.6

Graph showing total acreage worked and number of Ribes (wild & cult.) in Virginia by projects, exclusive of nursery sanitation and black currant eradication for 1937.



Graph showing the total acreage worked and number of Ribes (wild & cult.) in Virginia by projects, exclusive of nursery sanitation and black currant eradication-1928 to 1937.

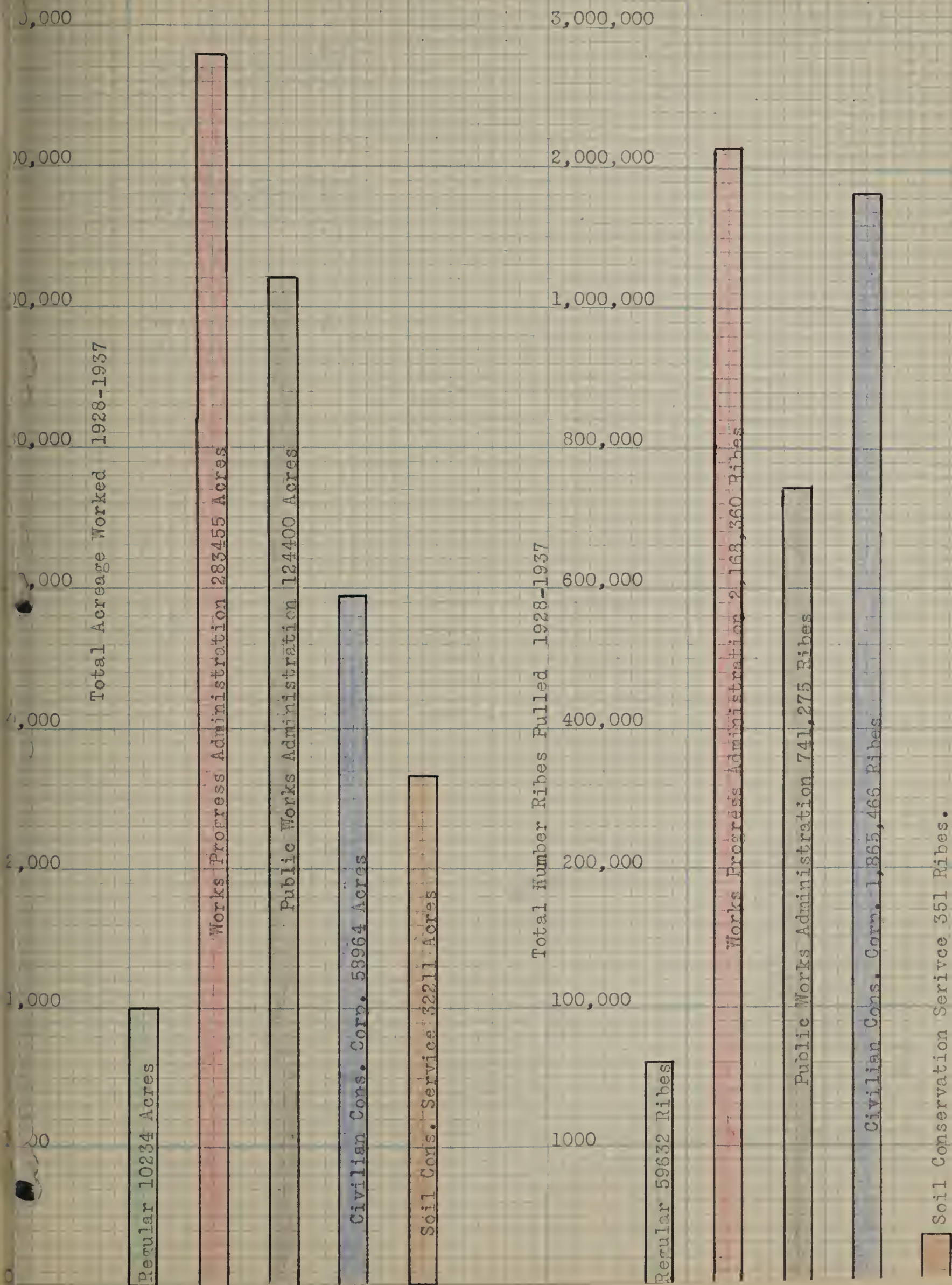


TABLE I Summary of Ribes Eradication in West Virginia, by Working, Project and Ownership in 1937

Classification	Acres	No. Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		
		Wild	Cult.	Total			No Ribes	No. Man Days	Cost
By Working									
First	168,374	567,557	1,293	568,850	7631.	\$ 25,267.58	3.4	0.045	\$ 0.150
Second	20,719	72,695	4	72,699	578.	1,937.97	3.5	0.028	0.094
Total	1 89,093	640,252	1,297	641,549	8,209	27,205.55	3.4	0.043	0.143
By Project									
WPA	170,180	548,987	1,170	550,157	6,725	24,207.55	3.2	0.039	0.142
CCC	18,913	91,265	127	91,392	1,484	2, 998.00	4.8	0.078	0.159
Total	189,093	640,252	1,297	641,549	8,209	27,205.55	3.4	0.043	0.143
By Owner									
Nat'l Forest	53,864	231,972	139	232,111	2,174	6,483.37	4.3	0.040	0.110
State	5, 783	20,814	58	20,872	407	990.77	3.6	0.070	0.171
Private	129,446	387 ,466	1,100	388,566	5,628	19,731.41	3.0	0.043	0.152
Total	189,093	640,252	1,297	641,549	8,209	27,205.55	3.4	0.043	0.143

TABLE 2

Summary of Ribes Eradication in West Virginia by Working, Project and Year

-76-

From 1932 to 1937 Inclusive

Classification	Year	Acres	Number of Ribes Destroyed			Total M-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			No. Ribes	Man Days	Cost
W O R K I N G										
First	1932	268	2	0	2	-	\$ 24.35	1.0075	0	0.091
	1933	4,256	60,748	0	60,748	635.0	1,332.75	14.25	0.149	0.313
	1934	30,702	119,092	3,386	122,478	1,547.0	7,089.86	3.99	0.050	0.231
	1935	37,681	402,505	2,027	404,532	3,062.	10,529.74	10.68	0.081	0.280
	1936	75,813	314,106	394	314,500	4,838.1	14,001.11	4.15	0.064	0.184
	1937	168,374	567,557	1,293	568,850	7,631.0	25,267.58	3.4	0.045	0.150
	Total	317,094	1464,010	7,100	1,471,110	17,713.1	\$58,245.39	4.63	.056	0.184
Second	1934	2,482	12,587	0	12,587	361.0	485.75	5.07	0.150	0.196
	1936	11,115	61,933	0	61,933	989.4	3,055.89	5.57	0.089	0.275
	1937	20,719	72,695	4	72,699	578.0	1,937.97	3.5	0.028	0.071
	Total	34,316	147,215	4	147,219	1,928.4	5,479.61	4.3	0.056	.159
Grand Total		351,410	1611,225	7,104	1,618,329	19,641.5	63,725.00	4.60	0.056	0.181

TABLE 2

Summary of Ribes eradication in West Virginia

From 1932 to 1957 inclusive

W O R I M G				Classification	Year	Acres	Number of Ribes Destroyed
							Cost
First							
	1932	168,244	507,553	1,502,100			
	1933	15,813	317,100	241,000			
	1934	32,691	105,502	2,052,000			
	1935	30,705	119,005	2,366,000			
	1936	11,526	60,718	0-000			
	1937	258	6,405	0-000			
Total				317,000	1,000,000	2,100,000	
Second							
	1932	50,719	45,692	4,000			
	1933	11,115	61,233	0-000			
	1934	5,719	15,581	0-000			
Total				31,316	117,515	4,000	
Grand Total				351,410	1,017,515	2,104,000	

TABLE No. 2 (Continued)

Summary of Ribes Eradication in West Virginia by Working, Project and Year

From 1932 to 1937 Inclusive

From 1932 to 1937 inclusive										
Classification	Year	Acres	Number of Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		
			Wild	Culti.	Total			Number Ribes	Number M-Days	Cost
P R O J E C T										
Regular	1932	268	2	0	2	-	\$ 24.35	.0075	-	0.098
	Total		2	0	2	-	24.35	.0075	-	.098
W. P. A.	1935	15,536	119,352	710	120,062	1,223	4,220.22	7.7	0.079	0.347
	1936	71,388	298,661	394	299,055	4234.1	13,839.20	4.0	0.059	0.195
	1937	170,180	548,987	1,170	550,157	6725.0	24,207.55	3.2	0.039	0.142
	Total	257,104	967,000	2,274	969,274	12,182.1	42,266.97	3.7	0.047	0.165
P. W. A.	1934	30,831	110,136	3,386	113,522	1274.	6,548.60	3.7	0.041	0.212
	1935	15,214	230,895	1,317	232,212	1136.	4,948.70	15.2	0.075	0.322
	Total	45,045	341,031	4,703	345,734	2410.	11,497.30	7.5	0.053	0.250
C. C. C.	1933	4,256	60,748	0	60,748	635.0	1,332.75	14.26	0.149	0.313
	1934	2,353	21,543	0	21,543	634.0	1,027.01	9.2	0.269	0.436
	1935	6,931	52,258	0	52,258	703.0	1,360.82	7.54	0.101	0.196
	1936	15,540	77,378	0	77,378	1593.4	3,217.80	5.0	0.103	0.207
	1937	18,913	91,265	127	91,392	1484.0	2,998.00	4.83	0.078	0.159
	Total	47,993	303,192	127	303,319	5049.4	9,936.38	6.32	0.105	0.207
Total Emergency Program		351,142	1,611,223	7,104	1,618,327	19,641.5	63,700.65	4.60	0.056	0.181
Grand Total		356,410	1,611,225	7,104	1,618,329	19,641.5	63,725.00	4.60	0.056	0.181
Year	1932	268	2	0	2	-	24.35	.0075	-	0.091
	1933	4,256	60,748	0	60,748	635.0	1,332.75	14.25	0.149	0.313
	1934	33,184	131,679	3,386	135,065	1908.0	7,575.61	4.07	0.057	0.228
	1935	37,681	402,505	2,027	404,532	3062.0	10,529.74	10.68	0.081	0.280
	1936	86,928	376,039	394	376,433	5827.5	17,057.00	4.34	0.067	0.196
	1937	189,093	640,252	1,297	641,549	8209.0	27,205.55	3.4	0.043	0.143
	Grand Total	351,410	1,611,225	7,104	1,618,329	19641.5	63,725.00	4.60	0.056	0.181

TABLE No. 2 (Continued)

Summary of Rides Practiced in West

From 1932 to 1937 Inclusive

Classification		Year	Acres	Number of Rides Practiced	Number of Rides Practiced
				Wet	Dry
Regular		1937	258	2	0
Total				2	0
W. P. A.		1937	12,732	119,322	710
		1936	11,388	206,661	394
		1935	120,120	218,997	1,170
Total			254,104	544,000	2,274
P. W. A.		1937	30,831	110,136	2,286
		1936	12,214	230,022	1,217
Total			43,045	340,162	3,503
C. C. C.		1937	18,912	21,262	127
		1936	12,240	17,318	0
		1935	0,221	2,228	0
		1934	2,222	21,212	0
		1933	4,226	60,148	0
Total			47,993	102,188	127
Total Emergency Program			351,115	1,011,522	2,107
Grand Total			356,110	1,011,522	2,107
Year		1937	180,002	610,222	1,207
		1936	86,928	210,022	394
		1935	27,601	102,202	2,027
		1934	32,184	121,670	2,336
		1933	4,226	60,148	0
		1932	266	2	0
Grand Total			351,110	1,011,522	2,107

TABLE 3

Summary of Ribes eradication in West Virginia by ownership and years.
From 1932 to 1937 inclusive.

-78-

Ownership	Year	Acres	No. Ribes Destroyed			Total Man-days Labor	Total Cost	Per Acre		
			Wild	Cult.	Total			No. Ribes	No. Man-days	Cost
Nat'l Forests	1933	606	36,932	0	36,932	386.0	\$ 496.00	61.0	0.637	\$.819
	1934	2004	13,612	0	13,612	553.0	868.50	6.8	0.276	.433
	1935	6931	52,258	0	52,258	655.	1,360.52	7.5	0.094	0.196
	1936	17933	124,010	0	124,010	1845.3	4,171.05	6.9	0.1031	0.233
	1937	53864	231,972	139	232,111	2174.0	6,483.37	4.3	0.040	0.110
	Total	81,338	458,784	139	458,923	5613.3	13,379.44	5.6	0.069	0.164
State	1934	349	7,931	0	7,931	63.0	158.51	22.73	.181	0.454
	1936	2619	23,183	0	23,183	142.0	364.88	8.9	.0543	0.139
	1937	5783	20,814	58	20,872	407.0	990.77	3.6	.070	0.171
	Total	8751	51,928	58	51,986	612.0	1,514.16	5.9	.070	0.173
Private This may include work on State land through 1935	1932	268	2	0	2	-	\$ 24.35	.0075	-	0.091
	1933	3650	23,816	0	23,816	249.0	836.75	6.53	0.968	0.229
	1934	30831	110,136	3386	113,522	1292.0	6,548.60	3.68	0.028	0.212
	1935	30750	350,247	2027	352,274	2407.0	9,169.22	11.46	0.078	0.296
	1936	66376	228,846	394	252,423	3840.2	12,521.07	3.5	.0578	0.189
	1937	129446	387,466	1100	388,566	5628.0	19,731.41	3.0	.043	0.152
	Total	261,321	1,100,513	6907	1,107,420	13,416.2	\$48,831.40	4.2	0.051	\$ 0.187
All Lands										
Grand Total		351,410	1,611,225	7104	1,618,329	19,641.5	\$63,725.00	4.6	0.056	\$ 0.181

TABLE 2

Summary of Ribes eradication in West Virginia
From 1932 to 1957 inclusive.

Ownership	Year	Acres	No. Ribes Destroyed	
			Wild	Total
National Forests	1932	538.4	521,925	439
	1933	17,933	124,010	0
	1934	6931	52,250	0
	1935	5001	12,612	0
	1936	606	30,932	0
Total		81,338	458,784	439
State	1932	5783	50,914	58
	1933	523	22,108	0
	1934	349	7,921	0
	1935	0	0	0
Total		6451	81,052	58
Private	1932	124,446	387,406	1100
	1933	66376	528,840	394
	1934	30720	320,847	5027
	1935	30831	110,136	3380
	1936	3050	22,016	0
This may include work on State land through				
1932				
Total		261,321	1,100,513	6907
Grand Total		327,410	1,011,225	7104
All Lands				
Total		1,100,513	1,100,513	1,100,513

TABLE 4

Concise Summary of Ribes Eradication in West Virginia By Working, Project and Year
from 1932 to 1937 inclusive.

79

Classification	Acres	No. Ribes Destroyed			Total Man-Days Labor	Total Cost	Per Acre		Cost
		Wild	Cult.	Total			No. Ribes	No. Man-Days	
By Working									
First	317,094	1,464,010	7,100	1,471,110	17,713.1	\$ 58,245.39	4.63	0.056	\$ 0.184
Second	34,316	147 ,215	4	147,219	1,928.4	5,479.61	4.3	0.056	0.159
Total	351,410	1,611,225	7,104	1,618,329	19,641.5	63,725.00	4.60	0.056	0.181
By Project									
Regular	268	2	0	2	0	24.35	.0075	0.	0.098
W P A	257,104	967,000	2,274	969,274	12,182.1	42,266.97	3.7	0.047	0.165
P W A	46,045	341,031	4,703	345,734	2,410.0	11,497.30	7.5	0.053	0.250
C C C	47,993	303,192	127	303,319	5,049.4	9,936.38	6.32	0.105	0.207
Semi Total Emergency Projects	351,142	1,611,223	7,104	1,618,327	19,641.5	63,700.65	4.60	0.056	0.181
Grand Total all Projects	351,410	1,611,225	7,104	1,618,329	19,641.5	63,725.00	4.60	0.056	0.181
By Woner'ship									
Nat'l Forest	81,338	458,784	139	458,923	5,613.3	13,379.45	5.6	0.069	0.164
State	8,751	51,928	58	51,986	612.0	1,514.16	5.9	0.070	0.173
Private	261,321	1,100,513	6,907	1,107,420	13,416.2	48,831.4	4.2	0.051	0.187
Total	351,410	1,611,225	7,104	1,618,329	19,641.5	63,725.00	4.6	0.056	0.181

TABLE 4

Concise Summary of Rides Prediction in West Virginia from 1932 to 1937

Classification	Acres	No. Rides Destroyed		Total
		Wild	Cult.	
By Ownership				
First	317,091	1,464,010	2,100	15,411
Second	34,310	147,215	4	1,451
Total	351,401	1,611,225	2,104	16,862
By Project				
Regular	528	5	0	5
W P A	527,104	967,000	5,524	15,123
P W A	16,045	341,031	4,703	5,110
C C C	47,993	303,195	157	2,642
Emergency Projects	351,145	1,611,225	2,104	16,862
Grand Total	351,401	1,611,225	2,104	16,862
By Monorship				
Natl. Forest	11,338	158,204	139,953	2,611
State	6,251	21,958	58,111	610
Private	361,351	1,100,513	6,902,107	13,711
Total	351,401	1,611,225	2,104	16,862

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Entomology and Plant Quarantine
Division of Plant Disease Control
(White Pine Blister Rust)

Inspection of White Pine Planting Sites

of

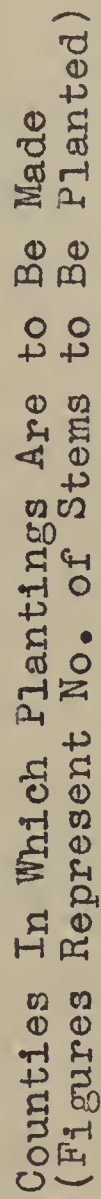
Kentucky Soil Conservation Service

and

Inspection of Kentucky Forest Service Nursery

1937

SCALE - STATUTE MILES



Counties In Which Cultivated Ribes Were Observed During Inspection Tour of Planting Sites and Louisville Nursery

3/18 3/27/37

Ralph W. Welch

3/30/37

WHITE PINE BLISTER RUST

Report On The Inspection Of

Proposed White Pine Planting Sites Of The Soil Conservation Service Falmouth And Madisonville, Kentucky, Projects

Two of the Soil Conservation Service districts in the State of Kentucky contemplate the planting of white pine on lands of various cooperators within the districts. Before the plantings were made it was desirable to ascertain facts pertinent to damages that might later be effected by the disease, white pine blister rust.

This report deals with an inspection tour of the planting sites, the purpose of which was to make observations and collect data concerning Ribes conditions on and near the sites. Since all sites inspected were found to be free of Ribes, favorable recommendations were made to the Service for their white pine planting program, in so far as blister rust is concerned.

As a matter of record, it seems that what observations were made on the trip might be reported in brief, even though Ribes were not observed at any place where they might interfere with the white pine plantings proposed.

Nineteen proposed pine sites were examined in the State, upon which a total of 12,000 to 13,000 pine seedlings are to be planted in late March or April. The plantings will be distributed in five counties, as follows:

<u>County</u>	<u>District</u>	<u>No. of Plantings</u>	<u>No. of Stems</u>
Grant	Ky. No. 3	7	1725
Pendleton	Ky. No. 3	7	2800
Boone	Ky. No. 3	1	3525
Nicolas	Ky. No. 3	2	2450
Hopkins	Ky. No. 2	2	2000
Totals - - - - -		19	- - -12500

From conversations with the various foresters contacted, it was learned that the white pine plantings are somewhat of an experimental and demonstrative nature. White pine, in its native state, does not exist in any of the counties in which plantings are being made. Since the species is foreign, in so far as these sections of Kentucky are concerned, the Soil Conservation Service is desirous of introducing it, on a small scale, of course, until it is learned whether or not it is suited to the environs. If its possibilities are of any magnitude, it is thought that it might then be adopted by land owners as a wood-lot tree, thus effecting a local supply of softwood timber and, at the same time, binding in with Soil Conservation measures. In no event, however, would it be of any more import than a farm wood-lot species, because the area is void of extensive forested lands.

Then, too, the Service has in mind the use of white pine in establishing shelter belts in connection with their land erosion program. Therefore, the plantings to be made

No.	Particulars	Debit	Credit
1	By Balance		100.00
2	To Cash	50.00	
3	To Cash	25.00	
4	To Cash	25.00	
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97	To Cash	25.00	
98	To Cash	25.00	
99	To Cash	25.00	
100	To Cash	25.00	

The following is a list of the names of the persons who have been admitted to the membership of the Association since the last meeting of the Association, held on the 1st day of January, 1900. The names are given in alphabetical order, and the date of admission is given in parentheses.

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are principally "fringe" plantings, six to twenty chains in length and one to five rows in depth.

Sites selected are, for the most part, on sandy soils and northern slopes. Elevation is rather low for white pine, yet not out of range. A five year agreement with S. C. S. cooperators provides for the protection of trees from grazing. Fire hazards vary with the respective planting sites, but, in general, it can be said that they are minimized, especially so during the contract period.

Ribes Condition

Falmouth Area (S. C. S. District No. Ky. 3). The inspection tour was general enough that Ribes would have been discovered, had they been present in sufficient concentrations to be dangerous from the standpoint of blister rust. It is seriously doubted if any wild Ribes are to be had in Boone, Grant, Pendleton and Nicolas counties. In these counties very little of the land is in the wild state, most of the area being under rotation of pasture and cultivation. Interviews with several of the older residents of this section of Kentucky, revealed that they had never heard of wild gooseberries or currants, nor were they aware of cultivated bushes being grown in their respective neighborhoods. However, two garden gooseberries were observed in Gardnersville, Ky., a small village in the northwest corner

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of Pendleton county, near the Grant county line. The nearest white pine planting site is one mile distant. Probably other plantings of cultivated bushes are within the counties, but they are not common in the sections of counties visited during the inspection.

Madisonville Area (S. C. S. District No. 2 In this area, located in Hopkins county, western Kentucky, no Ribes were observed within the 900 feet control areas of the two sites examined. However, from general observations, it might be said that this area more nearly approaches the typical wild Ribes habitat than does the Falmouth district in northeastern Kentucky. Elevation * is against this theory, since it is some 400 feet lower than the Falmouth project. The land, however, lies steeper with a rougher topography, less of it is in cultivation and more in wood land. Nevertheless, it is questionable as to the likelihood of heavy concentration of Ribes being present, if any at all are to be found.

*Elevation Falmouth District 800 to 900 feet.

Elevation Madisonville District 400 to 500 feet.

WHITE PINE BLISTER RUST

List of White Pine Planting Sites Inspected To Determine Ribes

Conditions - Soil Conservation Service -

Falmouth And Madisonville, Ky., Projects

<u>Cooperator</u>	<u>Address</u>	<u>County</u>	<u>No.</u> <u>W.P</u>	<u>Acres</u> <u>W. P.</u>	<u>Ribes</u>
R. L. Westover	Williamstown, Ky.	Grant	600	0.5	None
J. F. Cleek	Florence	"	Boone 3525	2.8	"
Mrs. Clara Elliott	Knoxville	"	Pendleton 300	0.25	"
Leland Dewalt	"	"	" 1000	0.8	"
Nathan Elliott	Williamstown	"	" 300	0.25	"
C. A. Kelly	Demossville	"	" 800	0.7	"
T. L. Mangold	Falmouth	"	" 200	0.16	"
L. D. Daugherty	Demossville	"	" 100	0.08	"
Harry E. Hitch	Crittenden	"	" 100	0.08	"
Mrs. E. T. Piercefield	"	"	Grant 400	0.33	"
Mrs. M. Z. Wynn	"	"	" 75	0.06	"
Ira Rogers	Flingsville	"	" 200	0.16	"
J. J. Marshall	"	"	" 100	0.08	"
Marion Gibson	Sherman	"	" 200	0.16	"
C. R. Flynn	"	"	" 150	0.12	"
M. Glen Booth	Carlisle	"	Nicolas 650	0.5	"
L. V. Jacob	Moorefield	"	" 1800	1.5	"
B. H. Moore	Madisonville	"	Hopkins 1000	0.8	"
J. Cox Heirs	Slaughters	"	" 1000	0.8	"
Totals	- - - - -	- - - - -	12500	10.13	None

Total combined control area acreage - 1617

All except the last two on the above list are located in Project No. Ky -3, Falmouth. The last two are in Project Ky.-2, Madisonville.

BLACK CURRANT ERADICATION

There was no project of this character in the Region; nor were any black currants reported destroyed in Table III. What bushes of this species were destroyed were counted with others in regular control work.

Mr. Hrlebaugh living near Norbeck, Maryland who has had several hundred European black currants which have been infected with blister rust several times has gotten rid of most of his bushes in the past two years.

BLACK COTTONYD MANDUCAE

There was no project of this character in the
 design; not were any black cottonyds reported destroyed
 in Table III. What number of this species were destroyed
 were compared with others in regular control work.
 Mr. Durlabach living near Woodstock, Virginia who
 has had several hundred European black cottonyds which have
 been infested with blisters that several times has gotten
 rid of most of his bushes in the past two years.

NURSERY SANITATION

- WHITE PINE BLISTER RUST -

Description of Ribes Conditions.

Environs of Kentucky Forest Service Nursery.

Louisville, Kentucky.

Upon the date of this inspection, the Kentucky Forest Service Nursery was growing 40,000 to 50,000 white pine seedlings. Plans are for the sowing of about five pounds of seed with the arrival of the proper time for seeding.

The nursery is located within the boundaries of the State Fair Grounds, near the Ohio River, in the southwestern outskirts of Louisville, Kentucky.

The environs of the nursery for a distance of 1500 feet on all sides include several distinct types. Since a discussion of the control area surrounding the nursery is deemed advisable, the area will be subdivided for the sake of convenience.

(1). The State Fair Grounds: This area, for the most part, is given over to demonstration buildings, a grandstand, and racetrack. Only one dwelling house is present within the grounds, it being the residence of the grounds superintendent. No cultivated Ribes are present on his premises. Within the boundaries of the fair grounds there is only one section that might produce wild Ribes, an unimproved area of some thirty acres lying easterly to the nursery. It is low land, rather swampy and brushy. The area was carefully examined during the inspection but Ribes were not present.

THE HISTORY OF THE
CITY OF BOSTON

From its first settlement in 1630 to the present time.
By SAMUEL JOHNSON, Esq.
Author of the "Lives of the Presidents of the United States," &c.
Vol. I.
BOSTON: PUBLISHED BY J. B. LEECH, 15 NASSAU ST. N.Y.
1854.

The City of Boston, the oldest and most important of the New England States, was first settled in 1630, by a band of Puritan emigrants, who, under the leadership of John Winthrop, founded the city of Boston. The city grew rapidly, and by 1680 it had become one of the most important cities in the New England States. In 1703, the city was destroyed by a great fire, which burned down almost all the buildings in the city. The city was rebuilt, and by 1750 it had become one of the most important cities in the New England States. In 1773, the city was the scene of the Boston Tea Party, a protest against British taxation. The city was then the center of the American Revolution, and it was here that the Declaration of Independence was signed. The city grew rapidly, and by 1800 it had become one of the most important cities in the New England States. In 1811, the city was destroyed by a great fire, which burned down almost all the buildings in the city. The city was rebuilt, and by 1850 it had become one of the most important cities in the New England States. In 1864, the city was the scene of the Boston Massacre, a protest against British taxation. The city was then the center of the American Revolution, and it was here that the Declaration of Independence was signed. The city grew rapidly, and by 1900 it had become one of the most important cities in the New England States. In 1911, the city was destroyed by a great fire, which burned down almost all the buildings in the city. The city was rebuilt, and by 1950 it had become one of the most important cities in the New England States. In 1964, the city was the scene of the Boston Massacre, a protest against British taxation. The city was then the center of the American Revolution, and it was here that the Declaration of Independence was signed. The city grew rapidly, and by 2000 it had become one of the most important cities in the New England States.

(2) That Portion of the Control Area lying North and Northwest of the Fairgrounds: This section is equally divided between a fifteen acre cemetery, on the east, and a residential district to the west. There is a vague possibility that flowering currants may be present in the cemetery, but a moderate examination did not reveal their presence.

The residential district is thickly populated. That portion of it falling within 1500 feet of the nursery would probably include as many as 100 houses. Since the interviewing of each of the residents to ascertain the presence or absence of Ribes would have entailed considerable time and labor, these contacts were not made. Speaking from general observations, it can be said that gardens, as would be expected in a closely settled residential section, were not present. It is doubtful if any Ribes are in this section of the control area.

(3) Northeast of the Nursery (east of the cemetery, north of the railroad): This area is comprised of a negro residential section. This area is not as thickly populated as the better residential district, just discussed, but several houses are to be found within the limits of the control area. A rather close examination did not reveal cultivated Ribes, although several gardens were observed. The inspection of this area was hampered, in as much as the great flood of two months previous left the district in a half abandoned state. Some of the gardens were yet covered

with debris and overturned houses, and all vegetation remaining in sight was mud stained to the extent that actual identification would have meant examination at close hand. Other gardens in the area had been cleaned of debris, and were in sufficient condition that Ribes would have been observed, had they been present. It might be suggested, at this point, that a closer examination should be made of this area with the next inspection, when reclamation will probably have been accomplished.

(4) South of, and along, Southern Avenue: It was this area that produced the only Ribes found during the inspection of the nursery environs. A planting of garden gooseberries and red currants (Ribes vulgare), twenty of the former and four of the latter, were found on the north side of Southern Avenue, about 900 feet distant from the southeast corner of the nursery. This Ribes planting is discussed later in the report.

Immediately south of the Ribes location just mentioned, in the right angle formed by the junction of 37th Street and Southern Avenue, another negro residential district, badly flood stricken, was observed. No Ribes were found here, but the suggestion concerning a closer examination with the next inspection applies also to this area.

The remainder of the south section of the control area was examined in so far as was needed, and no Ribes were present.

The area is a city dump of about twenty acres, and cultivated fields totaling thirty to forty acres. Some few houses had been located along the northern edge of these fields. On Southern Avenue, but flood conditions had demolished or washed away all but one.

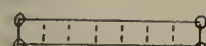
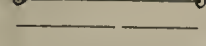
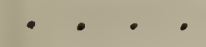
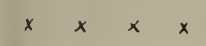
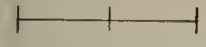
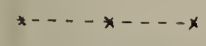
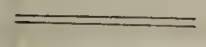
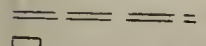



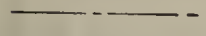
Ribes Observed. Plans are now under way by the Kentucky Forest Service to eradicate the Ribes mentioned above. Mrs. Jacob Brun, co-owner with Jacob Brun, has been interviewed and warned of the danger existing to white pine nursery stock if the Ribes are allowed to remain within 1500 feet of the nursery. Mrs. Brun was of the opinion that she and her husband, Mr. Brun, would probably agree to the removal of the bushes, if they were allowed to transplant them to another place, owned by them and located some miles from the nursery. Pending a discussion of the matter with her husband, the problem of removing the bushes was dropped. However, the Kentucky Forest Service, foreseeing the danger of the bushes in such close proximity to the nursery grounds, has a plan under way in which they will arrange to replace the currants and gooseberries with some other species of small fruit, or shrubbery, if the owners should fail in an agreement to remove the bushes to their property. From the attitude of Mrs. Brun, no great amount of trouble is anticipated.

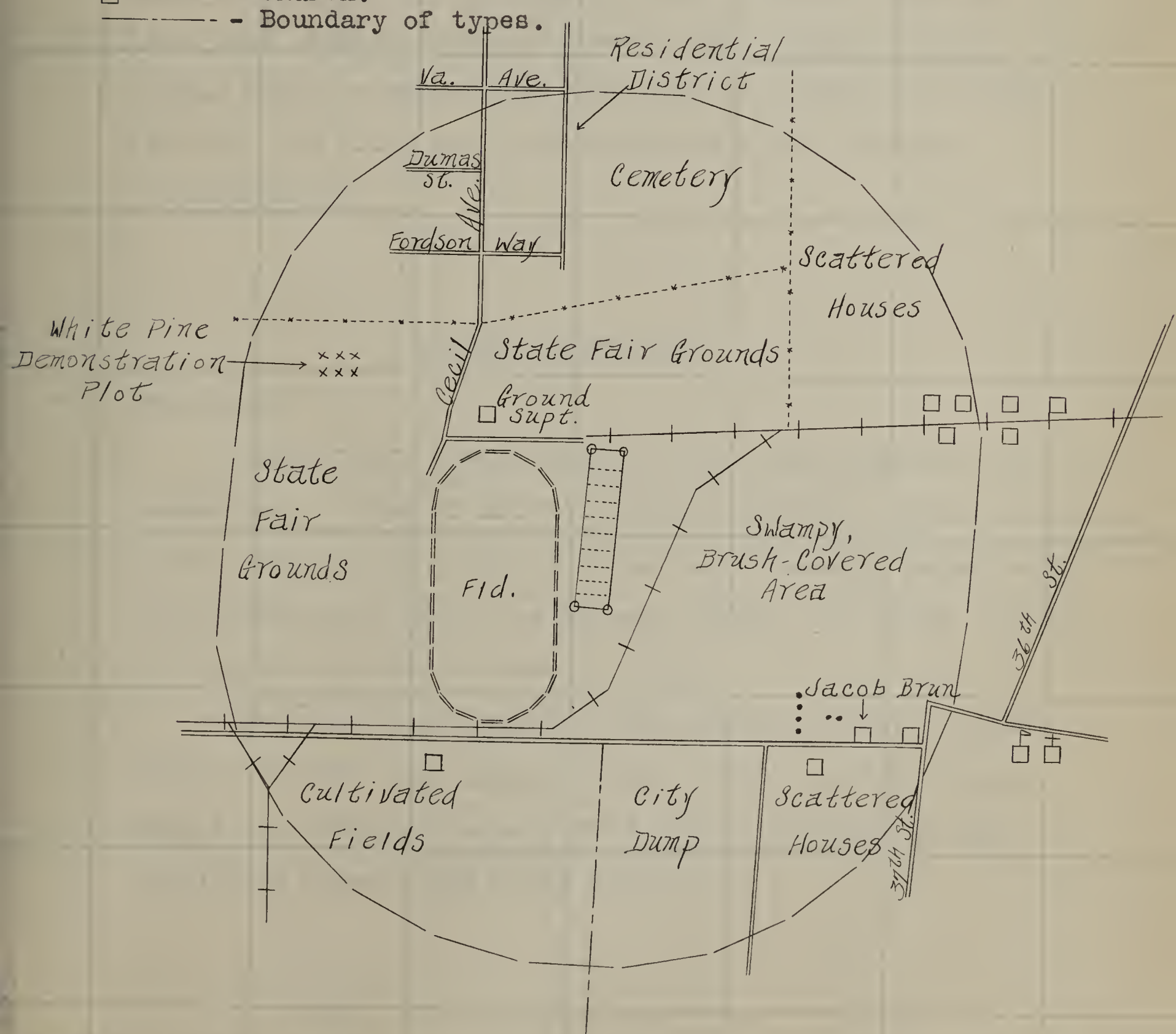
This report is submitted April 1, 1937. The inspection and mapping of the area was accomplished March 25 and 26, 1937.

Ralph W. Welch, Agent,

Map of
Kentucky Forest Service Nursery,
Louisville, Kentucky.

LEGEND:

-  - Nursery seed beds.
-  - 1500 feet control boundary.
-  - Cultivated Ribes.
-  - White Pine demonstration plot.
-  - Railroad.
-  - Fence.
-  - Street.
-  - Race track.
-  - House.
-  - School.
-  - Church.
-  - Boundary of types.



Scale 8 inches 1 mile

Surveyed and mapped by Ralph W. Welch
3/26/37

NURSERY SANITATION

Delaware - Pennsylvania

On April 9th and 10th, State leader Yost inspected the Fairville Nursery at Wilmington, Delaware, the owner of which is J. A. Vogel of Wilmington. This nursery is just over the line in Pennsylvania. Acreage inspected was 150. Number of Ribes found - 24. Number of white pines being raised - 736. The cost to federal government \$18.95. No Ribes were destroyed since they were in Pennsylvania.

NURSERY SANITATION

Maryland

During 1937, State leader, H. E. Yost inspected ten nurseries, a list of which is given hereafter. Wild Ribes occur only near one, that of the State Forestry Department near Herrington Manor, in Garrett County. No Ribes eradication was carried on here in 1937.

The four bushes found at the Ashland Branch of the Towson Nursery were missed bushes, while the four bushes found near Small's Nursery at Norbeck were sprouts and seedlings from an old Ribes location.

NURSERY SANITATION IN MARYLAND

In 1937

Nursery	Acres Worked		No. of Ribes Destroyed		No. of Days Labor of Agent	Cost (1)	Number of white pine in Nursery	Date of Inspection
	1936	1937	Wild	Culti.				
State Department of Forestry College Park	340	340	0	0	0.5	\$ 6.00 (2)	33,000	4/24
State Dept. of For. Herrington Manor	86	86	0	0	0	0	12,000	
" " Sunny Side	240	0	0	0	0.5	6.00 (2)	200,000	4/24
Gude, A. & Son Rockville	850	850	0	0	0.5	6.00	2,282	4/23-5/25/37
Kent Island Nursery Stevensville		220	0	0	0.5	6.00	22	4/8/37
Quaint Acres " Silver Spring	75	75	0	0	0.5	6.00	86	4/24
Rock Creek " Rockville	530	530	0	0	1.5	18.00	139	4/22
Rolandhurst " Hebron	250	250	0	0	0.5	6.00	151	4/8/37
Small & Sons, J.H. Rockville	500	500	0	4	0.5	6.00	1,034	4/22
Towson Nursery Ashland	855	855	0	4	2.0	24.00	2,854	5/27/37
Misc.							522	
Totals	3,726	3,946 (3)	0	8 (3)	7.0	\$84.00 (2)	252,090 (3)	

(1) The work was done by the State Leader, Mr. Yost, hence is not entered in cost of "Nursery Inspection" in Omnibus Table IV, but is entered under "Supervision."

(2) The only work done at College Park and Sunnyside Nurseries was checking on a few locations where Ribes have been dug in the past.

(3) The number reported in Omnibus Table III.

In 1937

Nursery	Acres Worked	No. of Plants Destroyed
	1936	1937
Towson Nursery	855	855
Small & Sons, J.H.	500	500
Rolandhurst	250	250
Rock Creek	550	550
Grain Acres	75	75
Kent Island Nursery	250	250
Gabe, A. & Son	850	850
"	240	0
State Dept. of For.	86	86
State Department of Forestry College Park	340	340
Misc.		
Totals	3,726	3,940 (3)

- (1) The work was done by the State leader, Mr. Yost, hence is no Omnibus Table IV, but is entered under "Supervision."
- (2) The only work done at College Park and Sunny Side Nurseries has been done in the past.
- (3) The number reported in Omnibus Table III.

Mr. Teague Reports:

NURSERY SANITATION

HAYWOOD COUNTY

One nursery was worked in Haywood County, the Champion Fibre Co. Nursery at Canton, North Carolina. There were about 50,000 white pines protected by working 470 acres of land and eradicating 685 cultivated Ribes in Canton. We used 32 one half man-days of labor.

This nursery is the only one found to date in Haywood County, and it grows several thousand white pines annually for white pine planting on property owned by this company. In the past some white pine planting stock has been sold to the North Carolina State Extension Forester for private plantings; but most of the white pines produced by this nursery are for the exclusive use of the Champion Fibre Company.

HENDERSON COUNTY

Nine nurseries were examined and Ribes were found at one nursery. Nineteen bushes were pulled after the owner - W. B. Sinclair - had been persuaded to cooperate. Mr. Sinclair was raising the currants and gooseberries much as he would other nursery plants and his attitude toward B.R.C. work was not favorable at first. A total of 1,638 acres was worked to protect the nurseries and 897 white pines were counted. Labor costs were \$6.24.

Agent Coulter worked six nurseries in Avery and Burke Counties protecting 7,215 white pines. It was necessary to work 2,131 acres of control area; and 87 native wild Ribes were eradicated, using 79.5 man-days of labor.

The State leader personally worked two nurseries owned by the Soil Conservation Service. One of these was located at Chapel Hill, N. C. and has about 546,000 white pine seedlings. The seed were planted in the spring of 1937. The other nursery inspected was at Polkton, N. C. and contained 3,600 white pine seedlings, in poor condition, that had been moved twice previously. No Ribes bushes were found at either Nursery.

A total of 18 nurseries were worked, protecting 607,712 white pines. It was necessary to work 4,623 acres of control area with 87 wild bushes and 704 cultivated bushes being destroyed. There were 117 man-days of labor used (including agents) in working the 18 nurseries.

The following table lists the nurseries worked and inspected during 1937.

NURSERY SANITATION WORK 1937

(Includes Checking on Previous Work)

Name of Nursery	Address	Control Acrg. Worked	No. W.P. in Nurs.	No. Ribes Pulled
Soil Conservation Service Nursery	Polkton, N.C.	192	3,600	0
" "	Chapel Hill	192	546,000	0
Keith Nursery	Hendersonville	192	15	0
Poinsett Gardens	Zirconia	192	500	0
Beackley Nursery	Hendersonville	192	50	0
Nielsen Nursery	Fletcher	192	30	0
Steadman Nursery	Hendersonville	192	50	0
Carolina Nursery	East Flat Rock	192	150	0
Sinclair Nursery	R.F.D.#3 Hendersonville	192	102	19
Gardens of the Blue Ridge	Pineola, N. C.	192	1,500	87
Anthony Lake Nursery	Pineola	1,192	4,000	0
Von Canon Nursery	Banner Elk	192	15	0
La Barrs Nursery	Jones Ridge	192	800	0
Champion Fibre Nursery	Canton	192	50,000	685
Nettlewood Nurs.*	Asheville	192	0	0
Camp's Flowers#	Hendersonville	0	0	0
Robbins Nursery	Pineola	551	900	0
Niknar Farm*	Asheville	192	0	0
Total		4,623	607,712	791

*Inspected only, was worked previously
Non-pine nursery

NURSERY SANITATION

Tennessee

During the calendar year 1937 the nursery of the T.V.A. at Clinton, Tennessee was inspected for Ribes. No Ribes were found in or around the area. There were 75,000 white pines in the nursery at the time of investigation. Acreage examined 350. One half days labor expended.

NURSERY SANITATION

Virginia

Mr. Luce Reports:

During 1937 six nurseries were inspected for blister rust on pine and the presence of wild Ribes within infection range.

No wild Ribes were found in the control zones but one escaped red currant sprout was found at the Waynesboro Nurseries, Inc., near Waynesboro and forty-eight cultivated Ribes were removed or destroyed. Forty-five of these bushes were nursery stock that had been set out about a month prior to the inspection.

At the Wescott Nursery near Falls Church forty-eight cultivated bushes were moved out of range from any possible planting site in the nursery, although their location was not within infection range of the present white pine stock.

In the six counties in which nursery sanitation was carried on in order to protect the 54,427 white pines in stock, 1400 acres were scouted and 100 Ribes were destroyed with 9.0 crew man days and 14.5 agent days at a total cost to the Federal Government of \$83.15.

The work of past years is summarized in the table below.

Nursery Sanitation					
	Number Nurseries	Acreage in Nurs. Control Area	No. Ribes Destroyed		No. 8 hour man-days
			Wild	Culti.	
1918-1936	12	13,191	192	1,730	99.1
1937	6	1,400	0	100	9.0
	18	14,591	192	1,830	108.1

For full details of the work done in 1937 see Table XIV Lucas Annual Report.

PINE SHIPPING PERMITS GRANTED

Applications were made by the following Virginia Nurseries

Alta Vista Nurseries
Alta Vista, Virginia

Waynesboro Nursery, Inc.
Waynesboro, Virginia

E. W. Jones Nursery
Woodlawn, Virginia

Westcott Nursery
Falls Church, Virginia

Virginia Forest Service
University, Virginia

Wood-Howell Nurseries, Inc.
Bristol, Virginia

Permits were granted to all of the above nurseries, except Westcott Nursery, and their permit was withheld pending removal of cultivated Ribes growing on a neighboring property.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

BY JOHN BURNET

IN TWO VOLUMES

VOLUME THE FIRST

THE REIGN OF KING CHARLES THE FIRST

FROM 1625 TO 1649

THE REIGN OF KING CHARLES THE FIRST

THE REIGN OF KING CHARLES THE FIRST

THE REIGN OF KING CHARLES THE FIRST

THE REIGN OF KING CHARLES THE FIRST

REPORT ON NURSERY SANITATION IN
WEST VIRGINIA IN 1937

98

By
J. M. Ashcroft
U. S. Forest Service at Parsons

Introduction and Summary

Ribes suppression within the control area of the U. S. Forest Service Nursery at Parsons, W. Va., was performed during the periods April 20-23 and May 7-18. Labor used consisting of a six man crew in addition to the foreman was obtained from relief rolls certified by the county relief officials. The foreman in charge of the crew was R. G. Pennington, who has acted in this capacity in previous years. Wages for the foreman and labor were paid by the Forest Service. General supervision was furnished by the State leader for blister rust control in West Virginia, J. M. Ashcroft, employed by the U. S. Bureau of Entomology and Plant Quarantine.

The area covered by the crew included all of the territory enclosed by the protective zone boundary. This control area was enlarged by an extension of the eastern boundary in 1936 to take in approximately 37 additional acres. This extension was necessary because the nursery area was enlarged by purchase. The total control area worked is 571 acres.

Eradication was begun on April 20 in the northern half of the control area. Most of this area has a southern exposure. By April 3, work was begun on the southern half of the control zone which for the most part has a northern exposure. Here it was found that only very few of the bushes were in leaf. Work was therefore, discontinued until May 7. In the four days, April 20, 23, only 49 bushes had been found in the part of the control area which had been worked. This part was reworked

THE HISTORY OF THE
CITY OF BOSTON

FROM 1630 TO 1800

The first settlement in Boston was made in 1630 by a group of Puritan ministers and laymen, who came from England to establish a colony in the New World. They were led by John Winthrop, who gave the colony its name, Boston, in honor of St. Botolph, the patron saint of the city of Boston in England. The colony was founded on the site of the present-day city of Boston, and it grew rapidly in size and importance. By 1639, the colony had a population of about 1,000 people, and it was one of the most important and prosperous colonies in the New World.

The colony was governed by a council of elders, and it was known for its strict adherence to the principles of the Puritan faith. The colony was also known for its education, and it was one of the first colonies to establish a public school. The colony was also known for its commerce, and it was one of the most important trading centers in the New World. The colony was also known for its military strength, and it was one of the first colonies to establish a standing army.

The colony was also known for its religious freedom, and it was one of the first colonies to establish a system of religious toleration. The colony was also known for its political freedom, and it was one of the first colonies to establish a system of representative government. The colony was also known for its economic freedom, and it was one of the first colonies to establish a system of free trade.

after the whole had been gone over once, because it was believed that leafing had not progressed far enough by April 23 to make possible a thorough job. The acreage covered in the first and second workings amounted to 625 acres approximately.

The belief that eradication was begun too early was borne out by the result of the second working. For example, the first working of block 14a on April 20, yielded 10 bushes of which 6 were currants. Reworking on May 7 yielded 29 bushes, 6 of which were currants. In the "New Area" the first working revealed only 5 bushes. In the second working 102 were found. This appears to indicate that, because of the wide variability among individual bushes in the time required to break dormancy after the onset of growing weather, it is quite possible to start eradication too early after the first bushes begin to leaf. This seems to have been the case this year.

However the work done in the first period this year was not a total loss inasmuch as several of the large bushes found in clumps of vegetation, such as greenbrier vines. These would probably have been missed had work been delayed until other vegetation leafed out.

Eradication Work

A total of 318 bushes were pulled within the extended control zone of the nursery. The location of these bushes according to blocks as indicated on the map of the nursery and protective zone are given in the following table.

Block Number	Bushes Pulled
4	1c
5	2
7DFG	25
10	3
12	1
14	1
14A	27 12c
30	10 1c
32C	2
32E	2
32F	2
37B	2
38A	66
38B	1
41	25 11c
41A	6
41B	11
New Area	107
Total	318

In addition to the bushes pulled within the control area approximately 1,000 were pulled in an area lying just outside of the eastern boundary on the point of a ridge lying between Roaring Run and the road to Hambleton, West Virginia. Ribes are numerous on this point, which overlooks the valley in which the nursery is located. An east wind, which meets

with no obstruction between the point to the nursery. It is suggested, therefore, that whenever it is necessary to familiarize inexperienced crews of men with Ribes bushes and crew methods that this point be used as a training ground. By putting the men at pulling bushes on this point/^{for}as long as necessary to train them, the separate purpose of reducing Ribes population on this point will be served.

Records were kept of the size of the 318 bushes pulled within the control zone. The results are given below:

Height in feet	0--1'	1--2'	2--3'	3--4'	4--5'	Total
No. of bushes	278	21	7	10	2	318

Records were also kept as to whether the bushes were old bushes, seedlings or had sprouted from crowns or roots left from bushes previously eradicated. The results are given below:

Bush type	Old bushes	Sprouts	Seedlings	Total
Number of bushes	251	67	0	318

Cultivated Ribes

Of the 318 bushes eradicated from the control zone this year, 25 were of the cultivated species. Twelve of these were flowering currant sprouts eradicated from block 14A, where M. E. Connally pulled 195 flowering currants in 1934. Eleven bushes were Ribes grossularia removed from the garden of Mrs. M. L. Nester in Block 41. These bushes were not eradicated during the time the eradication of the other bushes was in progress, but on October 7, by the writer assisted by Mr. Pennington after suitable arrangements had been made with the owners. The other currants were pulled in blocks 4 and 30, one from each.

These are the first currants reported from either of these blocks, or were growing wild.

Costs

	Man-Hours	Rate Per Hour	Amount
Labor	476	\$.40	\$190.40
Foreman	100	.50	50.00
			<hr/> \$240.40

Recommendations

It is recommended that the 1938 working of the nursery be begun not earlier than the tenth day after the first leafing is observed, exclusive of days too cold for good growing conditions; that work be started on the southern exposures and blocks where solar radiation is of longest duration throughout the day; and that inexperienced crews be trained on the ride between Roaring Run and the road connecting Hambleton, W. Va., with the U. S. Route 219 for the reasons given elsewhere in this report.

CUMULATIVE SUMMARY OF FURBER SUPPLEMENTATION

PARSONS AREA, FARMER, EAST VIRGINIA
Showing Ribon Destruction
by Weeks and Years.

WEEK	Ribon Destroyed by Years			Ribon Destroyed by Years		
	1929	1935	1936	1937	1938	1939
1	319	58	214	591	29D	1937
2A	100			100	29E	5
2	2974		1726	4700	30	14
3	332		94	446	31	50
4	76	2	2	42	32	4
5						
6						
7	22	20	1	13	32A	7
7B	333	41	65	139	32B	2
7C	1563	21	312	1901	32C	3
7D	1293	32	127	1152	32D	7
8					32E	2
9	7	69		76	33	5
10	44			177	34	1
11					35	
12			2	3	35A	
13					35B	
14			43	114	35C	
14A	49271	250	3	793140	35D	
15	7	124		111	35E	
16	32			32	36	
17A	150			150	37A	
17B					37B	
18			3	3	37C	
19A	20			20	37D	
19B	119			119	37E	
20	2			2	37F	
21	5		1	6	37G	
22	21		13	34	37H	
22A	1120		50	110	37I	
23	10			10	37J	
24	220	1		1	37K	
25A					37L	
25B					37M	
26	49		5	54	37N	
27	11			11	37O	
28	7		26	33	37P	
29A	11			11	37Q	
29B					37R	
30C					37S	

* In 1934, 942 bushes pulled north of Turkey Knob outside of control area.

** In 1935 the control area was extended towards the east because the nursery was enlarged in that direction. In this extension of the control area 634 bushes were pulled north of the river and 159 south of it.

*** In addition to the 310 bushes eradicated within the control area, approximately 1,000 were eradicated from an area lying just outside of it. This area lies to the east of the nursery on the slope of a ridge which lies between Mountain Run and the road to Hambleton from Parsons.

c After a number indicated multiplied bushes. Numbers without such designation indicate wild bushes.

NA 1 Represents "New Area", north of river included in the 1936 extension of the control boundary.

NA 2 Represents "New Area", south of river

W. Virginia State Forest Nursery at LeSage, W. Va.

The writer inspected the State Forest Nursery at LeSage, W. Virginia, for Ribes on April 3rd., Of the approximately 126 acres included in the control zone of the nursery about half were scouted. Special attention was given to the rock cliffs on the ridge across the highway and opposite the nursery, and to the area along the river which formerly had been covered with a dense brush but subsequently had been cleared and utilized in the growing of strawberries. No Ribes were found in any of the acres scouted.

Cultivated bushes are known to be located at only three houses within the control zone. The owners of all these bushes have agreed to permit their destruction any time the blister rust is found in the vicinity of the nursery, a circumstance which is unlikely to occur inasmuch as this area is outside known range of native Ribes, and no other cultivated Ribes are known in this vicinity.

October 22, 1937

J. M. Ashcroft

Treatment of Infected White Pines

Only two States, Maryland and Virginia carry on this phase of blister rust control. The results of this work in 1937 are as follows:

	Maryland	Virginia	Total of Both States
No. of Trees Examined	80,380	1,485	81,865
No. of Trees Removed	89	9 (1)	98
No. of Trees Treated	2,301	150	2,451
No. of Cankers Removed	5,446	750	6,196
No. of 8 hr. Man-Days	540	24.5	564.5
Cost of Work	\$1,532.63	\$37.20	\$1,569.83
No. of Acres Worked	1,062	53	1,115
Percent of Trees Diseased	2.9	10.7	3.1
Average No. of Cankers per tree treated	2.3	5	2.5
Average cost per acre	1.44	0.70	1.40

(1) Seven of these trees were removed to be used in an exhibit at the State Fair at Richmond.

Canker Elimination in Maryland

This work of treating infected white pines which was begun in 1936 in Garrett County on State and National lands was continued in 1937. Five acres were treated in 1937 on 1,062 acres. Two areas are plantations.

Of the 80,380 trees examined in 1937, 89 pines were removed and 2,301 were treated, the two classes combined representing 2.9% infected. 5,446 cankers or 2.3 cankers per tree were removed from the 2,301 pines. The work cost \$1,532.63 or \$11.44 per acre, and consumed 540 man-days labor.

Combining the figures for 1936, we find 83,258 white pines examined, 103 trees removed 3,656 treated or 4.5% infected. 11,517 cankers or 3.1 cankers per tree were removed from the 3,656 pines treated. The total cost for this work in two years was \$1,760.66, the acreage worked 1,092, and the cost per acre \$1.62.

Canker Elimination in Virginia

Virtually all canker elimination in Virginia has been done in the Shenandoah National Park by the National Park Service using C. C. C. labor. This work was started in 1935 and has been continued to date.

During 1937 fifty acres of the Skyland infection area which received its first working in 1936 was reworked. Of 855 trees examined 120 were treated by the removal of 580 cankers and the cutting down of two trees which were so diseased that their removal was necessary. This work consumed 19.5 eight hour man days at a cost of \$31.20. The cost per acre for labor was \$0.62.

In the Deerfield District of the George Washington National Forest at Braleys Branch and above Camp Todd 630 trees were examined on approximately three acres of ground. 175 cankers were removed from 30 trees. Seven trees were removed to be used in the exhibit at the State Fair in Richmond. 4.0 labor man days and 1.0 supervision man day at a total cost of \$6.00 were expended in this work.

The treatment from 1935 to 1937 of infected pines has resulted in 19,391 trees being examined; 337 acres of land being worked and 15,668 cankers being removed from 2,950 trees treated. 408 trees have been cut down due to advance infections thereon. A total of 348.5 man labor have been expended at a total cost of \$1,067.53 or a cost per acre of \$3.16.

Delaware infections at Hockessin

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

WASHINGTON, D. C. Office of the District Forester

Cumberland, Maryland

September 28, 1937

Mr. Roy G. Pierce, Pathologist
803 Grace-American Building
Richmond, Virginia

Dear Mr. Pierce:

On the afternoon of September 21, I called at the office of the State Pathologist, at the University of Delaware at Newark, and was informed that Dr. Adams has resigned or is at least spending no time at the University and that his duties are temporarily taken over by Dr. T. F. Manns.

I examined the red currants and gooseberries on the University Farm and those at the Red Mens Home at Newark, and found no blister rust. The red currants were about 90% defoliated in each place.

On September 22, I examined the black currants and the red currants at White Clay Creek Church and found no disease.

I then traveled to Wilmington by way of New Castle and was unable to locate any Ribes. In that section north of Wilmington and east of Kennett Pike, several Ribes locations were found, but no blister rust.

On the 23rd, that section of the State west of Kennett Pike and north of Newark was covered. Several small plantings of gooseberries and currants were inspected and found clear.

Four European black currants on the property of Dr. Fred Hemsath at Hockessin, Delaware near the main cross road of the town and on the south side of the Lancaster Pike, the blister rust was found on all four of these bushes. Before leaving Delaware I stopped at the University and found that Dr. Manns was out, but I left word with his secretary that it would be advisable, I believed if one man could be assigned for one or two weeks to make an intensive search for blister rust in that section of the State north of U. S. # 40, and that if any locations of European blacks were known within the State, regardless of the location, it would be advisable to examine them this fall.

The locations of all Ribes found in Wilmington and Elkton Quadrangle were indicated on the USGS maps. No west Chester Quadrangle was available and therefore no detailed notations were made on the Ribes locations in that section.

Yours very truly,

/s/ H. E. Yost, Agent

*The infected leaves were examined by the Division of Forest Pathology and a statement was received from them that the leaves were infected with the blister rust, Cronartium ribicola.

Roy G. Pierce

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

WASHINGTON, D. C. Office of the District Forester
Quincy, Illinois
September 23, 1917

Mr. E. W. Wines, Entomologist
U. S. Department of Agriculture
Washington, D. C.

Dear Mr. Wines:

On the afternoon of September 21, I called at the office of the
District Forester, at the University of Delaware at Newark, and was
informed that Mr. Adams had remained on a boat coming up the
river and that his collection was temporarily taken over by
Mr. T. J. Hanna.

I examined the two curculionids and associated on the University
and those at the Red Top Mine at Newark, and found no difference.
The two specimens were about 600 detailed in each place.

On September 22, I examined the black curculionids and the red curculionids
at White Clay Creek Church and found no difference.

I then traveled to Wilmington by way of New Castle and was unable
to locate any more. In that section north of Wilmington and west of
Delaware River, several other locations were found, but no further west.

On the 23rd, first section of the State west of Newark Pike and
north of Newark was covered. Several small quantities of curculionids
and curculionids were inspected and found clear.

From September 23rd, I left a car on the property of Mr. John Lawrence
at Rockcastle, Delaware near the main road of the town and on
the south side of the Delaware River, the highest part of the town
was all found of these insects. Before leaving Delaware I stopped at
the University and found that Dr. Hanna was out, but I left word with
his secretary that he would be contacted. I believed it was not
on my mind to go on two weeks on an extensive search for
curculionids. In the section of the State north of I. J. H. and
west of the Delaware River, I found several more from which the State
specimens of the collection. It would be desirable to examine them

The collection of 1000 insects found in Wilmington and White Clay
was sent to the University on the 23rd. No more insects were found
on the 23rd and 24th. The insects were sent to the University on the 23rd.

Very truly,
E. W. Wines
District Forester
University of Delaware
Newark, Delaware

W. E. Wines

Maryland Infection Conditions

Allegany County

Mr. Yost, writes "It is believed that a light infection on pine is found generally distributed over an area of approximately four square miles in the vicinity of Fifteen Mile Creek at Town Hill. Many trees under 10 feet in height have been killed in this area."

Baltimore County

No white pine have been found infected as yet. There are at least 1,000,000 planted white pine in the County.

Carroll County

No rust has as yet been found on pine.

Frederick County

A few pines only have been found infected in the Catocten Mountains. Ribes however were heavily diseased ($33 \frac{1}{3}$ to 50%) on 1,100 acres in 1935.

Garrett County

This County has the heaviest infection on pine. It probably entered the County near Bittering about 1924. Mr. Yost writes "As a result of canker elimination work in the fall and winter of 1935 slightly less than 50 % of the trees in this area were found infected. Many trees under 10 feet high were killed. It is probably that over the County as a whole not more than one or two per cent of trees are diseased."

Montgomery County

Only one pine has been found infected - on a young pine in Mr. Wilkins Plantation near Halfpine (off Wisconsin Avenue)

Washington County

Only one young pine has been found infected. This pine was in the vicinity of High Rock in 1931, and was discovered for the first time on pine in Maryland in 1931 by C. T. Geiser.



Photo 24-17 Blister Rust Canker on White Pine at Bittinger, Md., the site of one of the oldest infections in the State. This infection dates back to 1924.

Photo by Dr. S. B. Fracker

STATUS OF BLISTER RUST IN MARYLAND

Table Showing Data of Entry of Rust into State
and Data of Discovery of Rust on Ribes and Pine

County	Probable Date of Earliest Infection	Date of Discovery		Date of Earliest Ribes Eradication Excluding. Nurs. Sanitation
		On Pine	On Ribes	
Allegany	1924	1934	1931 nigrum	1934
Baltimore	1937	not yet found	1937 vulgare	1936
Carroll	1937	"	1937 vulgare	-
Frederick	1931	1931	1931	1935
Garrett	1924	1934	1933 rotundifolium	1922 (1)
Harford	1937	not yet found	1937 vulgare	-
Montgomery	1936	1936	1934 nigrum	-
Washington	1929	1931	1931 (2) (3) aur.	1934

- (1) Mr. Karl E. Pfeiffer of the Maryland State Forestry Office began Ribes eradication at Nicolas Place near Thayerville in Garrett County about 1922
- (2) In Washington County, besides infection on aureum, nigrum and rotundifolium were also found infected
- (3) Mr. S. B. Ditwiler, then in charge of the Division of Blister Rust Control was the first one to discover the blister rust in the State.

Mr. Douglas Withers explaining to a group of school children in Western Virginia about the blister rust. Note the rapt attention of the children.



VIRGINIA INFECTION CONDITIONS

Blister Rust infections have been found in one new county, "Alleghany" on leaves of *Ribes cynosbati* and *Ribes rotundifolium*.

Eleven counties in Virginia have now been reported as being infected with the blister rust;- Alleghany, Augusta, Bath, Clarke, Frederick, Highland, Madison, Nelson, Page, Rockingham and Rappahannock. The heaviest infection centers on pine have been found in the Shenandoah National Park, at Elk Wallow, Hawksbill and Skyland, and in the George Washington National Forest about two miles above Camp Todd on Big River and at Reddich Knob on the Virginia - West Virginia line.

Heavy infections on *Ribes* have been located in Augusta, Highland and Rockingham Counties.

The following is a list of the new infections found in 1937.

SUMMARY OF NEW BLISTER RUST INFECTIONS
IN VIRGINIA IN 1937

Date 1937	County	Location	Area No.	Ownership	Stage of Disease	No. of Infections	Host	Elevation	Discoverer
3/25	Augusta	2-2/10 miles west of Camp Todd on Big River	B-5F	Federal	Pycnial	1	Pinus	2350	Cramer
3/27	Augusta	Ramseys Draft	14-F	Federal	Pycnial	1	Pinus	2500	Cramer
4/8	Augusta	Near Puffenbarger Field on Rt. # 95 near road	B-5F	Federal	Pycnial	1	Pinus	2900	Cramer
4/22	Highland	Hoovers Place, Brushy Fork	49	Private	Aecial	16	Pinus	2700	Cramer
5/6	Augusta	Peter Seay Tract	2	Private	Pycnial	1	Pinus	2500	Cramer
5/6	Augusta	Tearjacket Mt.	-	Federal	Aecial	3	Pinus	3500	Cramer and Luce
6/7	Augusta	Near Reddish Knob	4-F	Federal	Uredinial	1	Rotundi.	2800	Cramer
7/13	Augusta	Near Reddish Knob	4/F	Federal	Dormant	250	Pinus	3900	Cramer
7/14	Augusta	Near Fork of North River	5-F	Federal	Uredinial	5	Cynosbati	3000	"
8/3	Augusta	North River Plantation	3-F	Federal	"	2	"	2000	Cramer

SUMMARY OF NEW BLISTER RUST INFECTIONS IN VIRGINIA 1937 (Continued)

State 1937	County	Location	Area No.	Ownership	Stage of Disease	No. of Infections	Host	Elevation	Discov- erer
8/13	Augusta	Main and right fork of little River	13-F	Federal	Telial	3	Cynosbati	2950	Cramer and Pierce
9/14	Alleghany	near Falling Springs	-	Private	Telial	1	"	2900	Cramer
9/21	Rockingham	North of Reddish Knob to Bother Knob		Federal	Telial Dormant	11 9 - 33	Cynosbati & rotundifolium pinus	3300	Cramer
9/22	Braleys Branch	-		Federal	Telial Dormant	10 11	Cynosbati Pinus	2100	Cramer
11/10	Highland	Benson Run	-	Federal	Dormant	2	Pinus	3400	Cramer
12/9	Augusta	Woodell Springs in Little River	1	Private	Dormant	1	Pinus	1750	Cramer
9	Madison	Sexton Knoll	-	Federal	Dormant	1	Pinus	3300	Moore

SUMMARY: Five (5) Counties
Seventeenth (17) Areas
Three Hundred and sixty - three infections

VIRGINIA

YEARLY TABULATION OF BLISTER RUST INFECTIONS

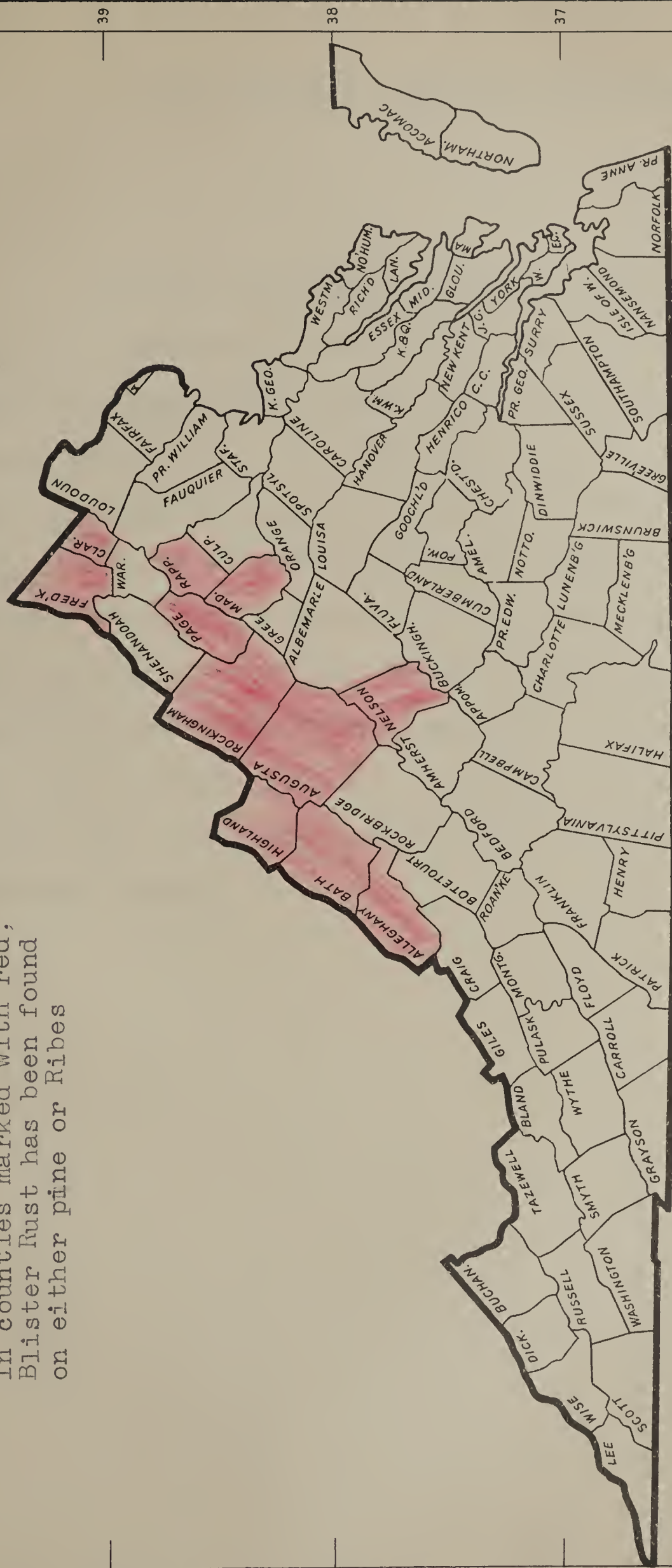
1910 - 1937

County	Year Infection First Found on		Probable Year Origin of Oldest Canker	Remarks: Extent of Infection in County at Present time, etc.	
	Ribes	Pine			
Augusta	1932	1933	1922	Heavy pine infections in spots.	
Alleghany	1937	-	-	-	-
Bath	1935	-	-	-	-
Clarke	-	1910	?	-	? -
Frederick	1931	-	-	-	-
Highland	1935	1937	1934	Pine unknown-Ribes heavily infected in 1935	
Madison	1932	1933	1926	Heavy on pine at Hawksbill	
Nelson	1934	-	-	-	-
Page	1932	1934	1926	Heavy on pine at Skyland	
Rappahannock	1931	1934	1926	Heavy on pine at Elk Wallow	
Rockingham	1934	1937	1932	Heavy on pine near Reddish Knob. Light elsewhere, except Braley Branch infections.	

Map Showing Distribution of White Pine Blister Rust

December 31, 1937

In counties marked with red, Blister Rust has been found on either pine or Ribes



SCALE-STATUTE MILES
0 10 20 30 40 50

WEST VIRGINIA INFECTION CONDITIONS

Dr. Ashcroft reports that the rust was found in only one new County, Greenbrier, on a few Ribes leaves of one bush although the Agents, Mr. Pierce, and I have all hunted for rust in new counties this past fall. The year 1937 was not one of widespread distribution of the rust as was 1935. The "infected" Counties now include Tucker, Randolph, Pendleton, Pocahontas and Greenbrier. Pine infections have been found in only Pendleton County in the Rough Run district east of Fort Seybert and along the road to Reddish Knob on the West Virginia-Virginia State line. Both these areas are in the George Washington National Forest.

PREERADICATION SURVEYS FOR WHITE PINE

PREERADICATION SURVEYS FOR WHITE PINE

Georgia

Surveys were carried on in Georgia throughout the year 1937 in connection with control work. 208,631 acres of white pine and protective zone were mapped, taking 1,762 man-days labor, or 14,099 man-hours. White Pine representing 5% or more of the stand totaled 52,537 acres, while scattered pine totalled 8,705 acres. The total acreage of white pine worth protecting was estimated at 53,037 acres.

Counties in which surveys were made include those in which control was carried on namely, Dawson, Gilmer, Lumpkin, Murray, Rabun, Towns and White.

For map of Georgia counties see page 51.1 of this report.

Maryland

The survey for white pines is practically complete in Garrett, Allegany, Frederick, Baltimore, Montgomery and Washington. It has been started in Anne Arundel, Carroll and Harford Counties.

During the year 1937, 831 acres of white pine, (5% or better) and 927 acres of scattered pine were mapped. Pine worth protecting amounted to 1,758 acres. Area of pine plus protective zone amounted to 12,583 acres. Surveys took 3,869 hours or 484 man-days labor. A total of 30,580 ornamental pines were also located.

Mr. Yost reports for period 1932 to 1937 inclusive the following results of surveying pine, by Counties:

Cumulative

Preeradication Survey Work on White Pine Stands to
12/31/37 by County Maryland

County	50 trees and over per Acre Approx. 5%	Less than 50 trees Per A.	Total White Pine	White Pine Worth Prot- ecting	White Pine Not Worth Protecting	Acreage to Work		Number of Ornamental Trees
						Crew	Scout	Total
Allegany	26,002	21,030	47,032	45,982	1,050	-	98,400	98,400
Baltimore	867	500	1,367	1,367	-	-	10,000	43,061
Frederick	867	635	1,502	1,502	1,500	950	2,232	3,182
Garrett	4,461	4,056	8,517	5,747	2,770	18,414	4,723	23,137
Montgomery	36	-	36	36	0	-	-	10,624
Washington	12,029	11,500	23,529	21,529	2,000	-	68,875	68,875
Total	44,262	37,721	81,983	76,163	5,820	19,364	184,230	203,594
								54,123

For Map of Maryland Counties see page 55.1 of this report.

North Carolina

Preeradication Surveys were carried on in 1937 in the Counties of Buncombe, Burke, Henderson; Jackson, Macon, Madison, Mitchell, Rutherford, Swain and Yancey.

Surveys were made on Federal lands on the Pisgah and Nantahala National Forests and in the Great Smoky Mountains National Park, as well as on private lands. A total area of 677,166 acres including white pine and protective zone were surveyed and mapped, taking 7,310 man-days labor (the figure, Mr. Teague used in Omnibus Statistical Table III.

According to Mr. Teagues PDC-4, Monthly Report for December 1937, 77,898 acres of white pine over 5% were mapped, as well as 106,820 acres of scattered pine. The total acreage worth protecting is given at 177,981 acres. A total area of 1,868,306 acres of white pine plus protective zone was mapped from 1933 to 1937 inclusive, using 8,140 man-days labor.

For map of North Carolina Counties see page 60.1 of this report.

Tennessee

Mr. Tanksley reported at the agents conference in January that "During 1937 survey work was carried on by four agents; by Agent Skiles and Vaughan in the northeastern counties. Work was completed in Johnson, Morgan and Sullivan Counties and is being continued in Cumberland, Carter and Unicoi Counties. During the past year 257,768 acres were examined and mapped. This includes the pine and protective zone." This work took 3877.6 eight hour man-days.

"There still remains a considerable area both in the National Forest and on private and state land which has not been surveyed. I estimated the control area including white pine in the National Forest at 100,750 acres. Of this 25,924 acres had been worked."

The Monthly Report for December 1937 shows that 114,371 acres of white pine (5% and over) and 87,663 acres of scattered pine were mapped. 260,602 acres were considered worth protecting.

Omnibus Table IIIA shows that 520,287 acres of white pine and protective zone have been mapped from 1932 to 1937 inclusive, using 5,614.6 man-days labor.

For map of Tennessee Counties see page 65.1 of this report.

March 2, 1900

Dear Mr. [Name],

I have just received your letter of the 28th inst. regarding the [subject] and am glad to hear that you are interested in the [subject].

I am sorry that I cannot give you a more definite answer at this time, but I am sure that you will understand my position.

I am, very respectfully,
Yours truly,
[Signature]

March 2, 1900

I have just received your letter of the 28th inst. regarding the [subject] and am glad to hear that you are interested in the [subject].

I am sorry that I cannot give you a more definite answer at this time, but I am sure that you will understand my position.

I am, very respectfully,
Yours truly,
[Signature]

I have just received your letter of the 28th inst. regarding the [subject] and am glad to hear that you are interested in the [subject].

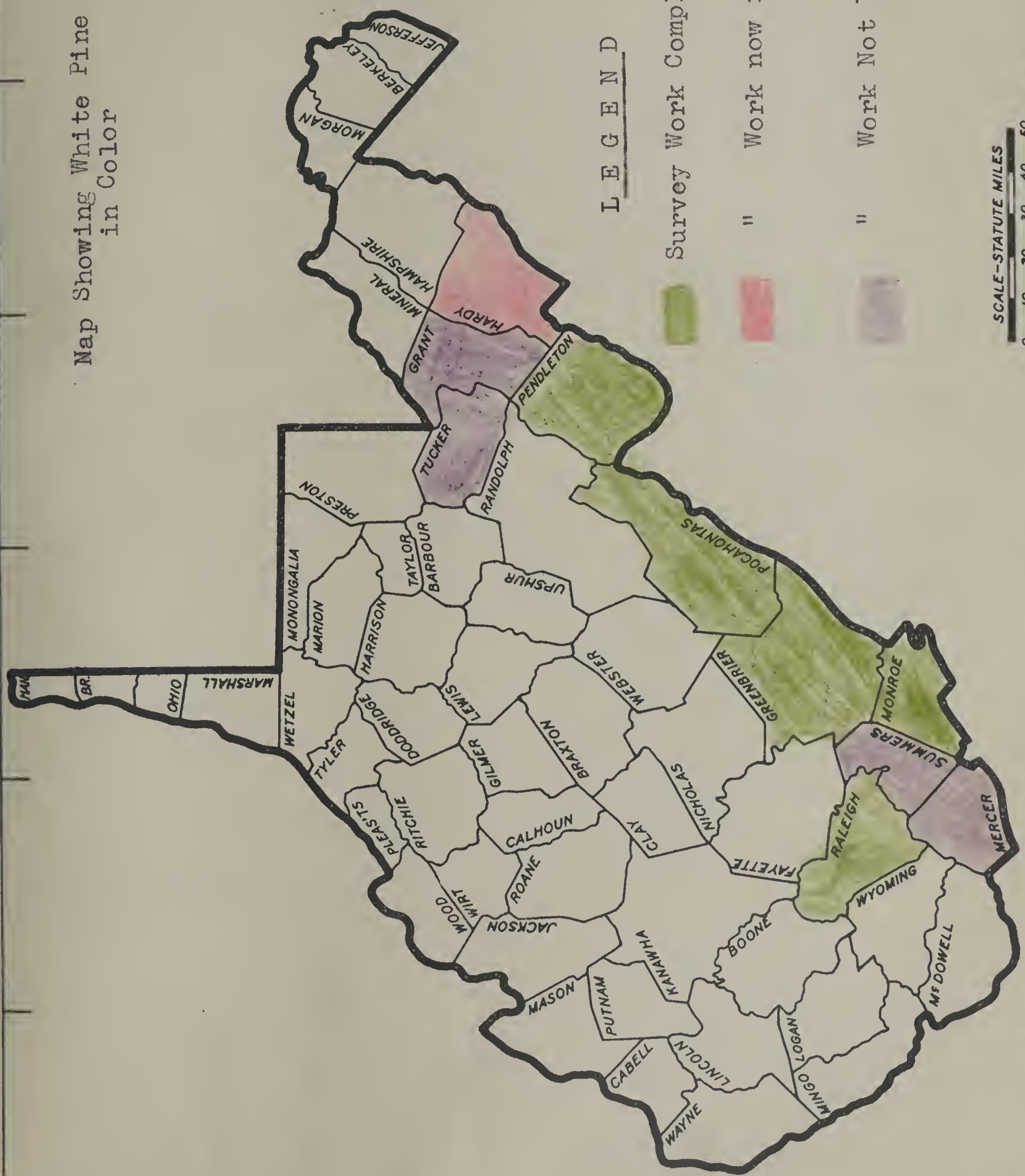
I am, very respectfully,
Yours truly,
[Signature]



Photo X 1-1 White Pines at Pine Grove, Beckley, W. Va., 4 miles south of the city. Ribes were destroyed here first in 1932.

Photo by Dr. S. B. Fracker

Map Showing White Pine Counties,
in Color

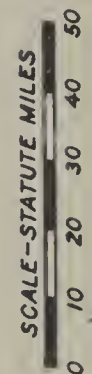


LEGEND

Survey Work Completed

" Work now in Progress

" Work Not Yet Started





FIELD STUDIES AND INFORMATIONAL ACTIVITIES

FIELD STUDIES

Maryland

Viking Currants

Mr. H. E. Yost reports that the Viking currants to the number of 50 were planted for trial at 11 different places, including five nurseries in eight counties in Eastern Maryland. There were living at the end of 1937, only 15 bushes located at seven places. Only Mr. Hurlebaugh, a grower of small fruits, who has specialized formerly on European black currants has kept alive the five bushes he received originally.

Dormant Eradication

Late in 1936, 41 plots totalling 33 acres were established (and marked with white paint) on which to secure relative efficiency of dormant spring and summer work and rework.

On four acres which were worked during the dormant season and reworked during the spring, 83.7% of Ribes and 97.5% of the live stem were destroyed on the first work and 16.3% of the Ribes and 2.5% of live stem was destroyed on the first work and 16.3% of the Ribes and 2.5% of live stem was pulled on the spring working. On four acres of ground which was originally worked in the summer and reworked the following spring, 95% of the Ribes and 99.2% of the live stem was destroyed on the first work and 5% of the Ribes and .8% of the live stem was found on the second work. All the above data involves gooseberries only. Very similar results were observed on skunk currant plots. This would seem to indicate that a sufficient amount of the live stem can be located and destroyed in the winter to justify dormant work. No eradication work was performed while the ground was frozen. No definite conclusion can be drawn on this work until after two or three years has elapsed. Definite plans are under way for reworking plots which were originally worked in the winter, spring and summer during the next spring. No tables or other data is being submitted with this report because the results to date are incomplete.

Blister Rust Study Plots

Studies are being made to determine the rate of intensification of blister rust on pine; and the distance of spread of blister rust from Ribes to pine under forest conditions.

In allegany County near the Long Pond Rod and Gun Club, studies were made of a location where approximately 100 wild Ribes were pulled on an area approximately ten feet square. These bushes were destroyed in the late fall of 1934 and were found heavily diseased with blister rust. 8.2 acres were laid out in plots of one square chain each surrounding this Ribes location and each tree was examined and plotted on the map.

The following table and comments were made on this study plot by Dr. Fracker which are self-explanatory. His notation regarding the fact that the oldest canker did not appear in the zone nearest the Ribes may possibly be that one or more small trees immediately adjacent to the bushes had become diseased in 1927 or earlier and this tree, or these trees, died and disappeared before 1934. There is reasonable evidence to indicate that during 1924 weather conditions were ideal for the long distance spread of the disease and this may have been the year in which the original infection occurred.

Zone	Average Distance from Ribes (feet)	Total Number of Trees	Number of Infected Trees	Percent of Trees Infected	Year of First Infection
I	36	3	3	100	1931*
II	86	35	7	20	1927
III	172	79	8	10	1928
IV	244	187	17	9	1927
V	330	146	9	6.2	1928
VI	410	169	6	3.5	1929
All Zones		619	50	8	

"*It is surprising that the three trees close to the Ribes were not infected before 1931."

In Garrett County on Swallow Falls State Forest at the Oakland Cranesville Road near Toliver Run, the protection zone line followed this road for a short distance. A small stand of scattered pine was found infected on both sides of this road near Toliver Run. One acre was staked out in plots of one chain square on the south side of the road where wild gooseberries and skunk currants are very abundant. Blister rust was found on the pine and a large number of the trees diseased. Each tree was examined and plotted on the map and a record made of the number and age of the canker. On the opposite side of the road 2.2 acres were mapped in plots one chain square and running approximately at right angles to the road which marked the limits of the Ribes eradication. A similar study was made of the pine on these plots and the cankers were cut. The initial work on this ground was performed in 1935 and it was reworked in the spring of 1936.

With the cankers cut and the Ribes eradication work maintained, any new infections on these plots will come from Ribes on the south side of the road. It is hoped that over a period of years data can be obtained on the distance of spread from these wild bushes. On this area periodical examinations will be made to determine the number of cankers originating each year, and the rate of killing of the white pine. On this one acre a total of fifty-five trees were found on which twenty-nine were diseased. The cankers were found as follows: 1930, one; 1931, two; 1932, twelve; 1933, twenty; 1934, forty one; 1935, twenty one. It is probable that many 1935 cankers cannot be identified at this date. No 1936 cankers were observed. One tree was found that died during 1937 and several others probably will not survive the summer 1938. As trees are killed it is planned to mark the location with stakes. It is planned to use this area for educational purposes.

Ribes Infection Study

In the fall of 1936 a strip line was made in Garrett County in an attempt to determine the degree of infection on Ribes at different distances from a large centre of infection on white pine. Weather conditions during the year did not seem particularly favorable for the spread of the disease from pine to Ribes. This survey was made beginning at protection area line of pine area #1, Grantsville Quadrangle and extended to the leeward 5400 feet. Every 100 feet plots 50X50 feet were made and notations taken relative to the percent of defoliation, the number of diseased Ribes, and the number of clear Ribes, and the percent of leaf surface covered with rust.

Doctor Fracker comments as follows: "On summarizing your table, I note that 92% of the Ribes within 1/4 mile of the heavily diseased pine showed infection; 85% in the second 1/4 mile; 29% in the third 1/4 mile and 54% in the fourth 1/4 mile which was on the far side of the crest of Meadow Mountain." No white pines were observed along the line except five mature and ten immature white pines approximately 3/4 mile from the pine and on the crest of the mountain. These trees had a few cankers, the oldest of which appeared to be of 1932 origin. This survey line crossed Meadow Mountain at approximately right angles to the crest of the mountain. From pine area #1, the slope was generally gradual, while the side of the mountain furthest from the pine is very steep. This marked increase in the degree of infection in the fourth 1/4 mile may have been caused in part by air currents eddying back against the side of the mountain. A similar condition was reported to me by Mr. G. C. Cramer, Blister Rust Control Agent, Virginia, in which he observed that on the west side of a similar mountain considerable pine infection was found. Practically no pine was found on the eastern side of the mountain. Ribes infection was very heavy on the east side of the mountain which was to the leeward of the pine and comparative light infection was found under and immediately surrounding the diseased pines.

The strip line survey was discontinued at 5400 feet because Ribes were so scarce that further study was not considered justifiable. In the last 700 feet of the survey only one Ribes bush was found.

The above data was taken from Mr. Yost's Annual Report for 1937.

FIELD STUDIES

North Carolina

Ribes Comeback on Biltmore Estate. - At abandoned house sites all of the Ribes on the Biltmore Estate are cultivated species or wild species which have been planted and which are now growing in a natural state. Ol house sites are known to exist throughout the Biltmore Estate. In several places, bushes have "escaped" from original site and are now found growing in the timber among the white pine or hardwood trees.

Work on the estate began in 1935 and has continued through 1937. Not all areas were worked the first year. Only four places were worked in 1936 by the owners or occupants. A comparison of the number of bushes pulled in 1937 with the number pulled in 1935 is of interest. Of ten places worked in 1935, only five were found with Ribes in 1937, though all places worked in 1935 were also scouted in 1937.

On the Hume site where the largest number of bushes were located in 1935, viz; 1,518 out of 2,812 pulled on the Estate in that year, three checks were made in 1937, the first yielding 71, the second 28, and the third by Messrs. Teague and Pierce yielding none.

Table Showing number of Ribes found and destroyed at places in Biltmore Estate worked in 1935 and in 1937

Places	1935	1937	Total
Hume	1,518	99	1,617
Brigman	225	40	265
Roadbank	313	17	330
Near Whites	639	18	657
Beech Spring	5	-	5
Mullerax	12	-	12
Bailey	20	-	20
Rice	50	155	205
Lance	15 est.	-	15
Butter	15 est	-	15
Total Number	2,812	329	3,141
Percent	90.5%	9.5%	100%

The above shows the necessity of reworking frequently these abandoned house sites. The following table gives the figures for all of the work on the Biltmore Estate, including the above.

BILTMORE ESTATE ERADICATION

Sites	Species	1935	1936	1937	Total
Hume's	Rot. Sat. Amer.	1,518	-	99	1,617
Brigman's	Rot. Sat.	225	-	40	265.
Roadbank	Rot.	313		17	330
Site near White's	Rot. and sat	639		18	657
Field at house	Rotundifolium	-	66 (coop.)	99	165
Site near Dogwood Road	Sat. Amer	-		7	7
Beech Spring	Rot.	5		-	5
Mullinax	Rot.	12	-	-	12
Bailey	Rot.	20	-	-	20
Butler	Gros.	-	-	78	78
Anderson	Rot.	0	-	21	21
Rice	Gros.	50	-	155	205
Charlie Johnson	Rot.	-	-	5	5
Logan	Gros.	-	-	167	167
Lance	Rot.	est. 15 (coop.)		-	15
John Redmon	Rot.	-	- 15	est. Coop.	15
Dairy Places	Rot.	-	" "		15
Wardell	Sat.	-	" "	"	15
Jake Butler	Rot.	est. 15 (coop.)	-	-	15
Total 19 Places	Rot. Sat.	2812	111	706	3,629

Note: A total of 87 places and sites were scouted.

INFORMATIONAL ACTIVITIES IN 1937
FROM JUNE 1 to DECEMBER 31

Activity	Ga.	Md.	N.C.	Tenn.	Va.	W.Va.	Tot.
Items Published	12	4	35	7	20	2	80
Demonstrations Placed	4	4	5	1	1	-	15
Initial Interviews	2429	765	5981	4095	986	265	14521
Follow-up calls	282	226	2370	250	74	45	3247
Individuals Instructed		182	4147	974	1826	303	7432
No. Publications Distributed	7657	453	2513	601	5701	353	17278
No. Posters Placed	149	18	181	84	174	83	689
Meetings	3	5	29		25	-	62
Attendance at Meetings	204	215	1108		1706	-	3233

INFORMATIONAL ACTIVITIES IN 1957
FROM JUNE 1 to DECEMBER 31

Activity	Gen.	Md.	N.C.	Tenn.	Va.	W.Va.	Total
Attendance at Meetings	204	212	1103	1206	-	-	3523
Meetings	3	2	29	22	-	-	62
No. Posters Placed	149	18	181	84	144	82	689
No. Publications Distributed	4627	423	2213	601	2201	222	12528
Individuals Instructed		182	4744	244	1826	302	4432
Follow-up calls	282	226	2220	220	44	42	3244
Initial Interviews	2429	462	2981	4092	986	262	14221
Demonstrations Placed	4	4	2	1	1	-	12
Items Published	12	4	32	7	20	2	80

TRANSPORTATION

portation

TRANSPORTATION

Without adequate transportation our work of pine surveys and Ribes eradication could not be carried on to the extent it is today. In 1937 there were generally sufficient trucks in the District to transport laborers to the vicinity of work, most of these trucks belonging to the U. S. Government, either owned by our Bureau, or by the Forest Service which loaned us C. C. C. trucks. A few trucks however had to be hired, notably in West Virginia in December, where three C. C. C. trucks had to be returned to the C. C. C. and in Virginia where one truck was hired.

The following table shows the number of trucks on hand in each States on January 1, 1937, and January 1, 1938.

State	January 1, 1937			January 1, 1938		
	Half ton	Ton and a half	Total No. of Trucks	Half Ton	Ton and a half	Total No. of Trucks
Georgia	1	2	3	1	2	3
Maryland	0	2	2	1	0	1
North Carolina	1	5	5	1	5	6
Tennessee	1	4	5	1	8	9
Virginia	1	4	5	4	3	7
West Virginia	0	4	4	0	1	1
	4	21	24	8	19	27

TRANSPORTATION COST

Of the 27 trucks owned by the Federal Government used in the District at the end of 1937, nine of them had speedometer readings of over 50,000 miles, while two of these nine had run more than 60,000 miles. It is the intention to retire such of these trucks as have very high mileage, as well as those trucks of lesser mileage whose cost of operation is excessive, as soon as additional trucks can be secured to replace them. Many of these 1933 trucks break down frequently, and are repaired by our own men. This does not show in the costs at present.

A table has been compiled showing the cost per mile for each ton and a half truck according to speedometer reading at end of year.

A second table has been prepared giving costs of all trucks operated by our District, including five which had been borrowed from the CCC and which have since been returned to them. Cost of operation of the 32 trucks amounted to \$11,003.40. Some trucks were transferred from one state to another, but the cost of each truck is charged against one state rather than split up.

Transportation Cost

Cost of Truck Operation in Southern Appalachian States

For $1\frac{1}{2}$ ton Chevrolet Trucks in 1937 - Grouped according to mileage at end of year

Mileage Class	State	U. S. D. A. License Number	Cost of Operation Per Mile in 1937
5000 - 14000	Maryland	43-017	\$0.018
	"	43-018	0.015
15,000 - 20,000	West Virginia	43-017	0.048
	"	43-108	0.038
	"	431-09	0.042
30 M - 35,000	Virginia	43006	0.033
" " "	Tennessee		
	West Virginia	44416	0.049
30 M 40,000	North Carolina	44422	0.039
	Georgia	44417	0.042
	North Carolina	44418	0.054
	Georgia	44421	.063
40 M 45,000	Virginia	43007	0.037
	Virginia	43008	0.046
	North Carolina	44419	0.038
	Tennessee	56633	0.039
45 M - 50,000	Tennessee	56632	0.047
	North Carolina	44420	0.050
50 M - 55,000	Tennessee	31193	0.035
	Virginia	43009	0.037
	North Carolina	44423	0.041
55-60,000	Tennessee	56634	0.067
	Tennessee	31199	0.070
65-70,000	Tennessee	31-198	0.037
	Tennessee	31-238	0.039

Cost of Truck Operation for $\frac{1}{2}$ ton pick-up Trucks in 1937

State	License Number	Mileage End of Year	Mileage At Beginning of Year	For Year	Cost	Total Cost of operating per mile
Georgia	38291	35543	20540	15,003	\$351.53	\$0.023
North Carolina	38360	23197	13616	9,581	233.85	0.024
Tennessee	31219	61562	52370	9,192	245.84	0.027
Va.-Maryland	53124	54057	45380	8,677	213.79	0.025
Virginia (1)	38292	25985	13639	12,346	188.83	0.015
Virginia (1)	53123	25590	18549	7,041	187.81	0.027
Virginia (1)	53121	46004	36515	9,489	396.27(2)	0.041
	53122	49848	44315	5,533	167.07	0.030

(1) Used only seven months

(2) General overhauling cost \$169.65 - account bad condition when turned over to us in May by E. C. W.

Cost of Operation of Half-Ton Trucks in 1937 Grouped according to Mileage at end of Year

Mileage Class	State	U.S.D.A. License Number	Cost of Operating per mile in 1937	Total Mileage Run by end of Yr.	Cost of Operate in 1936
20 - 30,000	Va. Md.	38202	0.015	25985	.010
	North Car.	38360	0.024	23197	.049
	Virginia	53123	0.027	25590	not used
20-40,000	Georgia	38291	0.023	35543	0.019
40 - 50,000	Virginia	53122	0.030(1)	49848	not used
	"	53121	0.041	46004	" "
50 - 60,000	Va. Md.	53124	0.025	54057	not used
60 - 70,000	Tennessee	31219	0.027	61562	0.068

(1) This cost per mile \$0.041 for Virginia truck is high because of necessity of overhauling it when we received it in May 1937

Truck Operating Costs in Calendar Year 1937

State	Total Operating Costs		State	Total Operating Costs		Total Cost
	1/2 ton Pickups	1 1/2 ton trucks		1/2 ton Pickups	1 1/2 ton trucks	
Georgia	\$351.53	\$423.11 431.37	Virginia	\$213.79 187.81 396.27 167.07 188.83	(4) \$681.77 (4) 556.34 (4) 361.78 (4) 658.77	
Maryland	351.53	854.48 73.03 55.79				
North Carolina	233.85	128.82 472.70 422.09 575.80 323.58 588.26	West Virginia	\$1153.77	\$2258.66	\$3412.43
Tennessee	233.85 245.84	\$2382.43 461.53 540.22 467.05 286.76(1) 134.04(2) 195.51(2) 126.91(3)			\$1,181.90	\$1,181.90
	245.84	\$2212.02		Grand Total	\$11,003.40	
				Cost all Trucks		

(1) for eleven months (3) for 4 months Others 12 months
(2) for six months (4) for 7 months

STATEMENT OF TRUCKS AND AUTOS IN USE
IN SOUTHERN APPALACHIAN STATES DURING
CALENDAR YEAR 1938

STATE	LICENSE NO. U. S. D. A.	OWNED BY BUREAU OR LOANED US	MAKE	CAPACITY	KIND	YEAR OR MODEL	DATE PURCHASED OR TRANSFERRED	ENGINE NUMBER
GEORGIA	38291	Owned	Chevrolet	1 1/2 ton	Pickup	1936	11/29/35	K-5739097
	44417	"	"	1 1/2 "	Stakebody	1933	12/1/37	T-3738247
	44421	"	"	1 1/2 "	"	1933	12/1/27	T-3853934
	42817	"	Dodge	1 1/2 "	Pickup	1935	12/22/37	T-1225871
	42824	"	"	1 1/2 "	"	1935	12/22/37	T-1225461
	42897	"	"	1 1/2 "	"	1935	12/22/37	T-1226369
	62012	"	"	1 1/2 "	"	1935	12/22/37	T-1225392
MARYLAND	31614	Owned	Dodge	1 1/2 ton	Pickup	1935	12/27/37	T-1225318
	31640	"	"	1 1/2 "	"	1935	12/27/37	T-1225413
	42864	"	"	1 1/2 "	"	1935	12/27/37	T-1224472
	31989	"	Chevrolet		Delivery	1936	2/15/38	M-5728086
NORTH CAROLINA	60143	Owned	Chevrolet	1 1/2 ton	Pickup	1936	12/28/35	K-5742052
	44418	"	"	1 1/2 "	Stakebody	1933	12/1/37	T-3764138
	44419	"	"	1 1/2 "	"	1933	12/1/37	T-3737187
	44420	"	"	1 1/2 "	"	1933	12/1/37	T-3719185
	44422	"	"	1 1/2 "	"	1933	12/1/37	T-3750443
	44423	"	"	1 1/2 "	"	1933	12/1/37	T-3719338
	42806	"	Dodge	1 1/2 "	Pickup	1935	12/28/37	T-1226243
	42889	"	"	1 1/2 "	"	1935	12/28/37	T-1225846
	62008	"	"	1 1/2 "	"	1935	12/28/37	T-1225854
	31575	"	"	1 1/2 "	"	1935	2/21/38	T-1224180
	62046	"	"	1 1/2 "	"	1936	2/21/38	T-1225043
	42809	"	"	1 1/2 "	"	1935	2/21/38	T-1225986
	62045	"	"	1 1/2 "	"	1935	2/21/38	T-1226504
	42882	"	"	1 1/2 "	"	1935	2/21/38	T-1224144
	62041	"	"	1 1/2 "	"	1935	2/21/38	T-1226063
TENNESSEE	62009	Owned	Dodge	1 1/2 ton	Pickup	1935	1/4/38	T-1224490
	31-840	"	"	1 1/2 ton	"	1935	1/4/38	T-12-22733
	56632	"	Chevrolet	1 1/2 "	Stakebody	1933	9/7/37	T-896915
	56633	"	"	1 1/2 "	"	1933	9/7/37	T-3685041
	56634	"	"	1 1/2 "	"	1933	9/7/37	T-3685382
	31579	"	Dodge	1 1/2 "	Pickup	1935	12/24/37	T-1224558
	42830	"	"	1 1/2 "	"	1935	12/24/37	T-1224546
	42868	"	"	1 1/2 "	"	1935	12/24/37	T-1224768
	62047	"	"	1 1/2 "	"	1935	12/24/37	T-1225435
	62044	"	"	1 1/2 "	"	1935	12/24/37	T-1226168
	42-868	"	"	1 1/2 "	"	1935	1/4/38	T-1225805
	62-011	"	"	1 1/2 "	"	1935	1/4/38	T-1224165
	31995	"	Chevrolet Deluxe	Delivery Sedan		1935	2/17/38	M-5745617

STATEMENT OF TRUCKS AND
IN SOUTH CAROLINA
CALCULATED IN

STATE	LICENSE NO.	U. S. D. A.	OWNED BY	MAKE	DATE
GEORGIA	50521		Owned	Chevrolet	1931
	44413		"	"	"
	44451		"	"	"
	45313		"	"	"
	45324		"	"	"
	45303		"	"	"
	65015		"	"	"
MARYLAND	31011		Owned	Chevrolet	1931
	31010		"	"	"
	45304		"	"	"
	31303		"	"	"
NORTH CAROLINA	60115		Owned	Chevrolet	1931
	44413		"	"	"
	44419		"	"	"
	44450		"	"	"
	44452		"	"	"
	44455		"	"	"
	45300		"	"	"
	45303		"	"	"
	65000		"	"	"
	31515		"	"	"
	65040		"	"	"
	45303		"	"	"
	65045		"	"	"
	45305		"	"	"
	65011		"	"	"
TENNESSEE	65009		Owned	Dodge	1931
	31-410		"	"	"
	50025		"	Chevrolet	1931
	50023		"	"	"
	50034		"	"	"
	31519		"	Dodge	1931
	45320		"	"	"
	45308		"	"	"
	65047		"	"	"
	65044		"	"	"
	45-008		"	"	"
	65-011		"	"	"
	31325		"	Chevrolet Deluxe Delivery	1931

STATEMENT OF TRUCKS AND AUTOS IN USE
IN SOUTHERN APPALACHIAN STATES DURING
CALENDAR YEAR 1938

STATES	LICENSE NO. U. S. D. A.	OWNED BY BUREAU OR LOANED US	MAKE	CAPACITY	KIND	YEAR OR MODEL	DATE PURCHASED OR TRANSFERRED	ENGINE NUMBER
VIRGINIA								
	38292	Owned	Chevrolet	1/2 ton	Pickup	1936	12/10/35	K-5741849
	53121	"	"	1/2 "	"	1933	5/24/37	K-3772435
	53122	"	"	1/2 "	"	1933	5/24/37	K-3848060
	53123	"	"	1/2 "	"	1933	5/24/37	K-3739047
	43007	"	"	1 1/2 "	Stakebody	1933	12/1/37	T-3719268
	43008	"	"	1 1/2 "	"	1933	12/1/37	T-3738260
	53124	"	"	1/2 "	Pickup	1933	5/24/37	K-3716853
	31607	"	Dodge	1/2 "	"	1935	1/5/38	T-1225119
	42899	"	"	1/2 "	"	1935	1/5/38	T-1226496
	31582	"	"	1/2 "	"	1935	1/5/38	T-1226187
	42831	"	"	1/2 "	"	1935	1/5/38	T-1225423
	31644	"	"	1/2 "	"	1935	2/21/38	T-1222400
	62050	"	"	1/2 "	"	1935	2/31/38	T-1226499
	62023	"	"	1/2 "	"	1935	2/21/38	T-1226499
	31695	"	"	1/2 "	"	1935	2/21/38	T-1224697
	31963	"	Chevrolet	Deluxe Sedan		1936	2/17/38	T-1224610
WEST VIRGINIA								
	44416	Owned	Chevrolet	1 1/2 "	Stakebody	1933	12/1/37	T-3733902
	43006	Owned	"	1 1/2 "	"	1933	12/1/37	T-3855385
	31837	"	Dodge	1/2 "	Pickup	1935	1/10/38	T-1225885
	42894	"	"	1/2 "	"	1935	1/10/38	T-1225465
	42989	"	"	1/2 "	"	1935	1/10/38	T-1224492
	31970	"	Chevrolet	Deluxe Delivery	Sedan	1936	2/17/38	M-5745721
	31950	"	"	"	"	1936	2/17/38	M-5745710
	31951	"	"	"	"	1936	2/17/38	M-5752877
	31990	"	"	"	"	1936	2/17/38	m-5728144
	43009	Owned	"	1 1/2 Ton	Stakebody	1933	1/18/38	T-3719311
	62010	"	"	1/2 Ton	Pickup	1935	12/24/37	T-1225758
	62042	"	"	1/2 Ton	Pickup	1935	12/24/37	T-1224622

RICHMOND, VIRGINIA

39284

Owned

Chevrolet 4 door sedan

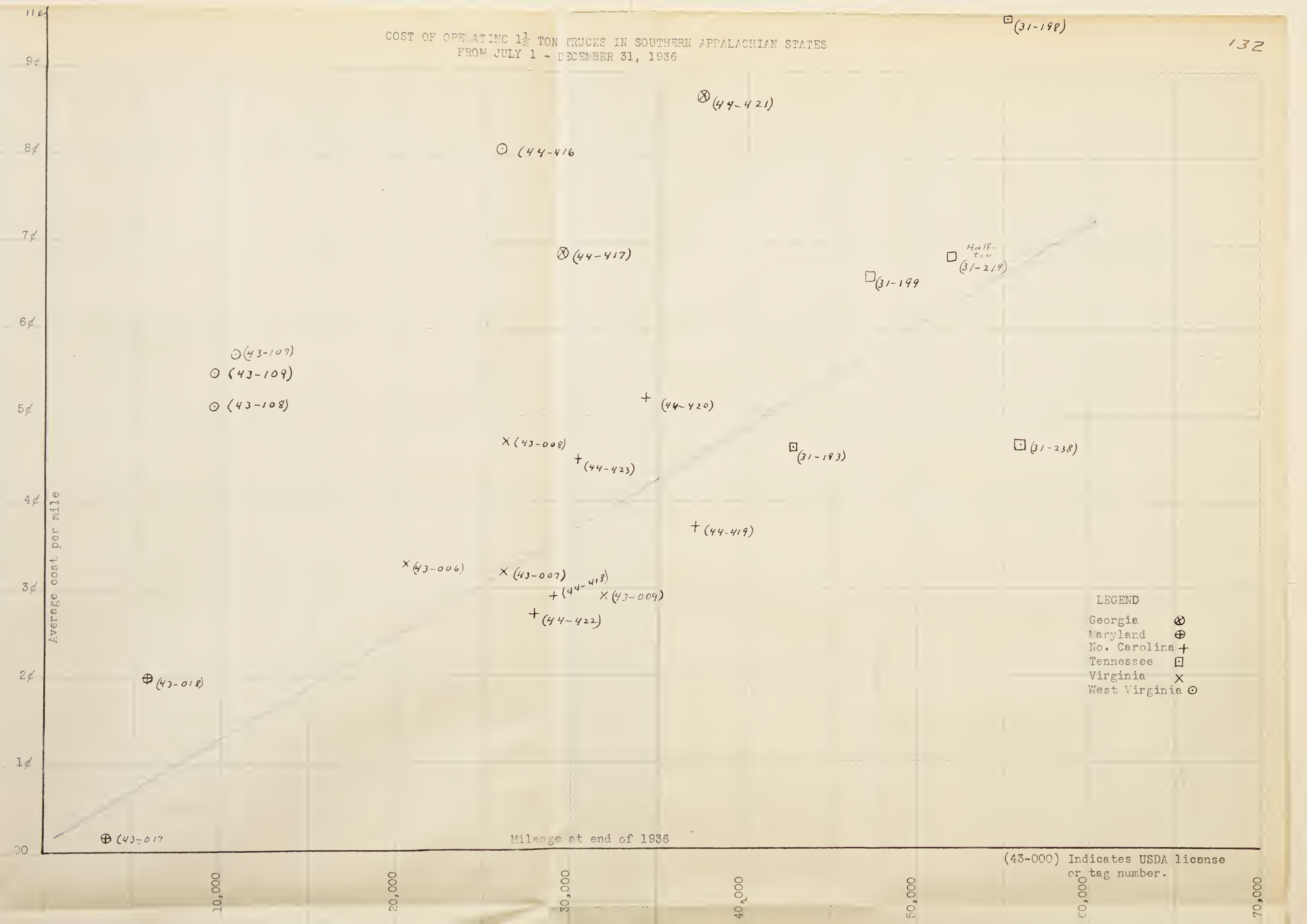
1936

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COST OF OPERATING $1\frac{1}{2}$ TON TRUCKS IN SOUTHERN APPALACHIAN STATES
FROM JULY 1 - DECEMBER 31, 1936

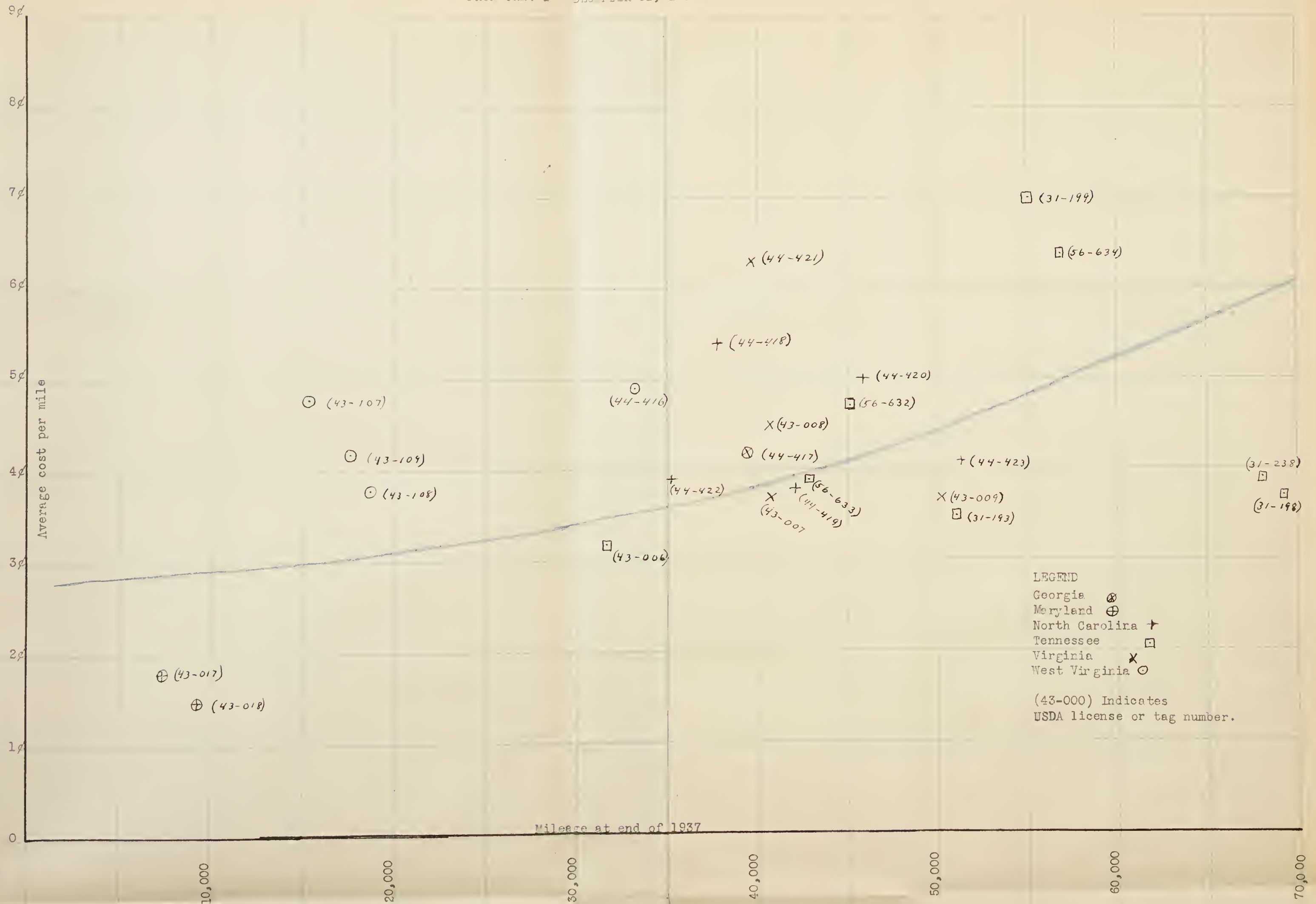
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132



COST OF OPERATING 1½ TON TRUCKS IN SOUTHERN APPALACHIAN STATES
FROM JAN. 1 - DECEMBER 31, 1937

133



Report of
ELIATED RUST CONTROL IN THE NORTH CENTRAL REGION, 1937

by

Henry M. Putnam
Senior Pathologist

and

Leiton E. Nelson
Assistant Forester

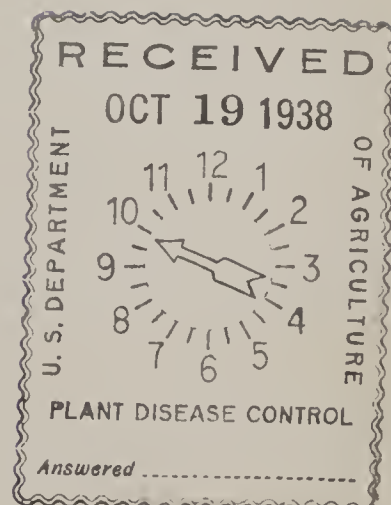


Table of Contents (Continued)

Pages

Local Control in 1967 - - - - -	24-41
General - - - - -	24
Illinois - - - - -	24-38
Indiana - - - - -	35
Iowa - - - - -	35-38
Michigan - - - - -	36
Minnesota - - - - -	36-38
Ohio - - - - -	36
Wisconsin - - - - -	38-41
Analysis of Ribes Eradication in 1967 - - - - -	39-41
Chart 4 - Showing Analysis of Ribes Eradication by Ribes Types - - - - -	40
Checking - - - - -	41-44
Chart 5 - Showing Acres Worked in 1967 Classified by Ribes Types into Feet of Live Stem Classes Remaining after Eradication - - - - -	43
Local Control Accomplished to December 31, 1967 - - - - -	44-50
Chart 6 - Showing Acres Worked by Initial and Second Eradication, Cumulatively and Yearly - - - - -	45
Chart 7 - Showing Ribes Pulled and Costs per Man-day by Years - - - - -	47
Chart 8 - Showing Ribes Pulled and Man-days used per Acre Worked by Years - - - - -	48
Chart 8A - Showing Total Acres of White Pine and White Pine Planting Sites Listed for Protection and Acres Initially Protected to December 31, 1967 - - - - -	49
Nursery Sanitation - - - - -	50-51
Cultivated Black Current Elimination - - - - -	51-53
Canker Pruning - - - - -	53
Control Line Boundary Marking 1967 - - - - -	53-54
Field Studies - - - - -	54-58
Infection Surveys - - - - -	54
Studies in Germination of Black Current Seed - - - - -	55
Field Studies Carried on Out of the Milwaukee Office - - - - -	55-58
Informational Activities - - - - -	58-59
Milwaukee - - - - -	58
Illinois - - - - -	58-59
Indiana - - - - -	59
Iowa - - - - -	59
Michigan - - - - -	59
Minnesota - - - - -	59-60
Ohio - - - - -	59
Wisconsin - - - - -	59-60

Table of Contents (Continued)

Page

Enforcement of Federal Quarantine No. 48- - - - -	58-59
Costs - - - - -	60-63
Chart 9 - Showing Proportions of Total B.O.C. Funds (\$688,672.44) Expended in Milwaukee Office and Each State- - - - -	61
Chart 10 - Showing Proportions of Total B.O.C. Funds (\$688,672.44) Charged to Different Activities - - - -	62
Chart 11 - Showing Proportions of Total Blister Rust Control Funds (\$688,672.44) Contributed by Different Programs	63
Chart 12 - Showing Percent of Funds in Each State Contributed by Each Group of Programs - - - - -	64
Chart 13 - Showing Percent of Funds in each State Spent on each Activity - - - - -	65

Table

- 1 - Approximate Number Man-months Employment on Blister Rust Control Activities, Milwaukee Office, 1937.
- 2 - Man-months Employment on Blister Rust Control Activities, by Months and Programs, North Central Region, 1937.
- 3 - Man-months Employment on Blister Rust Control Activities, All Programs, by Months and States, North Central Region, 1937.
- 4 - Approximate Number Man-months Used on Federal W.F.A. Program North Central Region, January 1 to December 31, 1937.
- 5a - Compensation Cases Involving W.F.A. Workers Reported to the Milwaukee Office, 1937.
- 5 - Pre-eradication Surveys Performed in North Central Region, 1937, by States and Programs, White Pine.
- 6 - Pre-eradication Surveys Performed in North Central Region, 1937, by States and Programs, White Pine Planting Sites.
- 7 - Pre-eradication Surveys Performed in North Central Region, 1937, Classified by Ownership and State.
- 8 - Cumulative Pre-eradication Survey Work to December 31, 1937, North Central Region.
- 9 - Acres White Pine Listed for Protection Classified into Approximate Ownership Classes, North Central Region, December 31, 1937. (Ownership Status Subject to Continued Change)
- 10 - Summary of Initial Local Control, by States and Programs, North Central Region, 1937.
- 11 - Summary of Pop-up (Initial) Local Control, by States and Programs, North Central Region, 1937.

Table of Contents (Continued)

Table

- 12 - Summary of Second Eradication Control Work, by States and Programs, North Central Region, 1937.
- 13 - Summary of All Local Control, by States and Programs, North Central Region, 1937.
- 14 - Summary of Initial Local Control Performed on National Forests in North Central Region from Inception to December 31, 1937.
- 15 - Summary Second Eradication Performed on National Forests in North Central Region from Inception to December 31, 1937.
- 16 - Analysis of Ribes Eradication, All Agencies, 1937 by Ribes Eradication Types.
- 17 - Summary of Local Control by Years, 1919 to 1937, Illinois.
- 18 - Summary of Local Control by Years, 1916 to 1937, Indiana.
- 19 - Summary of Local Control by Years, 1918 to 1937, Iowa.
- 20 - Summary of Local Control by Years, 1926 to 1937, Michigan.
- 21 - Summary of Local Control by Years, 1917 to 1937, Minnesota.
- 22 - Summary of Local Control by Years, 1933 to 1937, Ohio.
- 23 - Summary of Local Control by Years, 1918 to 1937, Wisconsin.
- 24 - Summary of Local Control by Years, 1918 to 1937, North Central Region.
- 25 - Acres of White Pine and White Pine Planting Sites Listed for Protection, and Acres Initially Protected, 1927 to 1937, by Approximate Ownership Classes, North Central Region.
- 26 - Acreage of Control Area Initially Cleared of Ribes, Covered by Pre-eradication Surveys and neither Worked nor Surveyed, North Central Region, 1918 to 1937 Inc.
- 27 - Results of Checking after Ribes Eradication, North Central Region, 1937.
- 28 - Percent of Acres Worked and Checked According to Ribes Per Acre Classes Remaining after Eradication, by Eradication Types, North Central Region, 1937.
- 29 - Percent of Acres Covered in each F.L.S. Class by each of the Three Eradication Types, North Central Region, 1937.
- 30 - Summary of Nursery Sanitation Work, North Central Region, 1937.
- 30a - Status of Nurseries Applying for and Receiving Pine Shipping Permits, North Central Region, 1937.
- 31 - Cultivated Black Currant Eradication, North Central Region, 1937.
- 32 - Cultivated Black Currant Weevils, North Central Region, 1937.
- 33 - Cultivated Black Currant Bushes Destroyed in North Central Region, 1929-1937 Inc.
- 34 - Summary of Blister Rust Canker Pruning, North Central Region, 1937.
- 35 - Summary of Blister Rust Canker Pruning, North Central Region, 1917 - 1937 Inc.
- 36 - Infection Survey, North Central Region, 1937.
- 37 - Control Zone Boundary Marking, North Central Region, 1937.
- 38 - Expenditures for All Blister Rust Control Projects in Milwaukee, 1937.
- 39 - Total Region Expenditures, Classified According to State and Program, 1937 (Including Milwaukee Office).

Table of Contents (Continued)

Table

- 40 - Total Region Expenditures, Classified According to Activity in State - 1937.
41 - Total Region Expenditures of Wages and Other than Wages, North Central Region, 1937.
42 - Range of Security Wage Rates and Hours, Retailers Only, North Central Region, 1937.
43 - Actual Man-months, Expenditures and Costs Per Man-month, Federal W.P.A., North Central Region, 1937.
- I - Summary of 1937 Ribes Eradication
II - Summary of 1937 Ribes Eradication by Programs. (Including all Work - 1st, 2nd and 3rd Workings).
IIA - Summary of all Ribes Eradication 1918 - 1937 (Inclusive).
IIB - Summary of all Ribes Eradication by Programs 1918 - 1937 Inclusive. (1st, 2nd, and 3rd Workings).
III - Summary of all Other Control Work for 1937.
IV - Summary Expenditures for 1937.
IIIA - Summary of all Other Control Work 1918 - 1937 Inclusive.
IIVA - Summary of all Expenditures 1918 - 1937 Inclusive.

Pages

AI-844 - Studies in Effectiveness of Control Measures.

Status of Blister Rust Control Program on December 31, 1937

North Central Region

Blister Rust Conditions

Infection has been found in varying degrees of intensity in practically all of the important white pine growing counties of the three lake States. It has reached the Jungs stage at several localities, notably northeastern Minnesota, central Wisconsin, central portion of Upper Michigan, and in restricted localities in Lower Michigan. The northern portions of the four southern states show scattered infections. During 1937 the known extent of the rust on Pinos was pushed south to include the northern tier of Illinois counties, and the southeastern portion of Wisconsin.

White Pine

The area comprising the northern two-thirds of the three lake States, which once produced the finest stands of mature white pine in the world, contains a constantly increasing acreage of young white pine. This is due to better fire control and forestry practices, which encourage the natural reseedling. Also during recent years there have been thousands of acres planted to white pine.

In the four lower states there are only scattered tracts of native white pine. However, this tree has been and is being extensively planted as shelterbelts, forest plantations and in connection with soil conservation measures. The planting program is particularly active in Indiana and Ohio. White pine shelterbelts are numerous in Iowa.

Throughout the region white pine is valued not only for forestry and high quality lumber production purposes, but also it is highly prized because of its aesthetic qualities. This last value is immeasurable but important in a region having an abundance of recreational facilities. In 1936 the commercial value of white pine in this region was estimated at \$68,000,000.00. This figure was based on estimates made by state and federal foresters, and others. No attempt was made to determine the aesthetic value.

The acreage of white pine in the region listed as worth protection costs in 1937 was 1,181,614 acres. The total control area from which fire hazards should be removed to protect this acreage of white pine was 4,100,000 acres. Inevitably, as pine acreage increases due to natural or artificial establishment, the acreage listed for protection must increase.

Control of Spruce

Acres white pine work preceding 1,161,534, so work 4,360,409.
Initially worked, acres white pine 584,120, control acres 4,076,289.
Given second working, acres white pine 10,884, control acres 124,741.
Percent white pine given initial working 61.6%, second working 4.5%.

Due to reduction in funds available in 1937, the area worked in 1937 was less than half that worked in 1936. In 1936 56,746,758 Pikes were removed from 684,618 acres to protect 175,515 acres of white pine at a cost of 179,781 man-days, or \$627,603.56. In 1937 16,606,004 Pikes were removed from 310,519 acres to protect 84,915 acres of white pine at a cost of 75,622 man-days, or \$280,370.70.

The grand total of control work in the region performed to December 31, 1937 shows 198,105,399 Pikes removed from 2,313,156 acres to protect 647,373 acres of white pine at a cost of 663,757 man-days or \$1,890,104.01. The average cost was 0.3 man-day or \$0.84 to pull 70 Pikes from the average acre worked. The average cost per acre of pine protected was 1.01 man-days or \$2.37. On the average 254.1 Pikes were pulled per man-day.

Checking After Eradication

The customary 2% systematic check in which the number and feet of live stem of Pikes are recorded on a measured acreage basis by means of running strips over the worked areas was continued in 1937. Pike counts on 2,748.73 Acres of strips to check work done on 169,367 acres showed 4.0 bushes and 9.3 feet of live stem per average acre remaining after eradication. This is well below the maximum of 25 feet of live stem per acre allowable. This checking represents practically 1,718 miles of strip run.

Of the 169,367 acres checked 96.2% showed less than 25 and 99.3% less than 50 feet of live stem per acre after eradication. Most of the acreage showing more than 25 feet of live stem was in Iowa, and this was reworked after the check was made.

Nursery Sanitation

During 1937 nursery sanitation was performed, either as initial work, or as an annual check for Pikes around 49 nurseries containing 1,664 Acres protected. To do this work it was necessary to remove 326,067 Pikes (of which 2,220 were cultivated bushes) from 15,120 acres. The ownership classification of the 49 nurseries was:

U. S. Forest Service - - - - -	11
U. S. Indian Service - - - - -	1
U. S. Soil Conservation Service - - -	6
U. S. Farm Security Administration -	1
State - - - - -	10
Private - - - - -	21

of the 20 nurseries applying for Federal white pine striping permits 17 were approved, and 3 not approved. Due to the presence within the areas of live swarms containing such a large number of small Ribes bushes that they could not economically be completely destroyed.

The number of white pine seedlings and growing stock within the 49 protected nurseries is as follows:

Illinois	3 nurseries	89,800 white pine
Indiana	2 nurseries	1,000,000 white pine
Iowa	1 nursery	218,000 white pine (and 148% of seed)
Michigan	8 nurseries	33,845,225 white pine
Minnesota	7 nurseries	16,193,000 white pine
Ohio	10 nurseries	3,868,802 white pine
Wisconsin	10 nurseries	16,736,120 white pine
Total	49 nurseries	89,193,147 white pine and 148% seed

Cultivated Black Current Eradication

Initial cultivated black current eradication has been virtually completed in pine growing counties of Michigan, Wisconsin, Minnesota, Ohio and northeastern quarter of Iowa. In Illinois and Indiana this work has been done only within one mile of protected areas. A substantial amount of recheck work has been performed in Michigan and Wisconsin.

To December 31, 1937, 245,804 cultivated black current bushes found on 23,520 properties had been destroyed.

Recommendations for Future Work

The control program substantially as conducted in recent years on the same or larger scale should be continued with the objective of establishing and maintaining blister rust control around all valuable white pine stands in the region. With the program of cultivated black current eradication so near completion, thus slowing down the advance of the rust the whole-hearted cooperation of interested agencies and the continued use of relief funds in control work should result in protecting north-white pine stands with only a minimum loss from blister rust.

Status of Blister Rust Control Program on December 31, 1937

Illinois

Blister Rust Conditions

Previous to 1937 the only location of infection reported was at Warren, Jo Daviess County, where in 1935, rust on Ribes nigrum was reported. In 1937, however, rust was found on R. nigrum and cultivated red currant bushes at 19 locations in five northern counties; viz., Boone, Kane, Lake, McHenry and Winnebago, with the largest number of infected locations, 13, found in Lake County.

White Pine

Not extensively planted heretofore, but gaining in popularity as conservation programs become more active. White pine is very well adapted to reforestation purposes as evidenced by the growth on Governor London's estate near Oregon, where approximately 600,000 white pines have been planted within the past 20 years. There are four major native stands all in state parks, valued highly for aesthetic purposes.

Status of Local Control

Acres white pine worth protecting - - - - -	2,568
Acres white pine given initial working - - - - -	1,000
Acres white pine given second working - - - - -	1,117
Percent given initial working, 88.7%, second working, 54.0%	

Nursery Sanitation

Anticipating inclusion of Illinois in list of infected states, nursery sanitation was performed around seven private and one state nurseries.

Cultivated Black Currant Production

No systematic county wide elimination program performed, due to the few number of white pine areas. Instead, efforts have been made to destroy all cultivated black currant bushes within one mile of protected areas of white pine and white pine growing nurseries.

Recommendations for Future Work

Continue present program to complete initial working around all white pine stands justifying such costs. Provide for subsequent workings where necessary. Cooperate with nurserymen growing white pine in nursery sanitation work. Scout for rust yearly.

Status of Blister Rust Control Program on December 31, 1937

Indiana

Blister Rust Conditions

Infection found on Ribes cynosbati and R. americanum in two locations in LaPorte and Lagrange Counties. No infection reported since then.

White Pine

Not many native stands, but white pine is increasingly popular particularly with the State and Soil Conservation Service, as a species for planting because of its rapid growth and adaptability to various sites. The southern third of the state is practically Ribes-free, except in a few places, and in this portion white pine can safely be planted and does extremely well.

Status of Local Control

Acres of white pine worth protecting - - - - -	4,287
Acres of white pine given initial working - - - - -	1,739
Acres of white pine given second working - - - - -	554
Percent given initial working 29.6%, second working 8.3%	

No local control was performed in 1937.

Nursery Sanitation

Although state not classified as infected, nursery sanitation has been carried on.

Cultivated Black Current Elimination

Cultivated black current bushes are very scarce in Indiana. No systematic elimination of this species is contemplated, other than removal of such bushes within one mile of protected white pine plantations and white pine growing nurseries.

Recommendations for Future Work

All remaining unprotected white pine areas should be worked initially. With the expansion of the white pine planting program, blister rust control should be resumed on a scale sufficient to keep abreast of the planting program. This can be done at a low cost, particularly in the southern third of the state.

Status of Siberian Rust Control Program on December 31, 1937.

Iowa

Siberian Rust Conditions

Rust infection found in 1917 in Lyon County; 1830 in Lyon, Fayette and Story Counties; 1934 in Dubuque County; and in 1937 in Palo Alto County. Rust infection found in 1917 in Lyon County; in 1930 in Story County; and in 1934 in Dubuque County. The state listed as an infested state.

White Pine

Although there are six major native stands of white pine, its chief importance lies in its use in shelterbelts. There are about 5,000 white pine shelterbelts listed as worthy of protection. Farmers value their shelterbelts very highly in a prairie state such as Iowa.

Status of Local Control

Acre white pine worth protection (mainly 5,000 shelterbelts)	1,200
Acre white pine given initial working	2,000
Acre white pine given second working	30
Percent given initial working 38.3% second working 0.7%	

Nursery Sanitation

Pine shipping permits were issued in 1937 to two private, one state and one Soil Conservation Service nurseries, which were all the nurseries worked.

Cultivated Black Current Elimination

The systematic cultivated black current elimination program, started in 1934 and continued through 1937, was approximately 90% completed in 25 counties in the northwestern quarter of the state, and partially completed in six adjoining counties. This work was performed during fall and winter months in conjunction with pre-radiation surveys. To December 31, 1937, 970 locations containing 2,904 cultivated black current bushes had been destroyed.

Recommendations for Future Work

The program, as conducted in 1937, including pre-radiation survey work, local control, nursery sanitation, cultivated black current elimination, scouting for the rust, should be continued towards the end of establishing and maintaining control around all north white white pine stands in the state.



Status of Blister Rust Control Program on December 31, 1937

Minnesota

Blister Rust Conditions

While blister rust was not reported in 1937 from any counties not known to be infected previously, farther spread of the rust was found in new areas in infected counties. Chief among these findings was the discovery of a severe pine infection center, dating to 1930, in northwestern St. Louis County, about 50 miles north of any known pine infection in this county. Approximately 80% of the pines examined was infected. To date infection on either one or both of the host plants has been found in 81 counties, in 26 on Ribes and 56 on pines.

White Pine

Although the extensive stands of mature white pine have been logged, white pine during recent years of improved fire protection and forestry practices is coming back naturally from seed. In addition, through efforts of state and federal authorities, white pine is widely used as planting stock for forestry purposes.

Status Local Control

Acres white pine worth protecting - - - - -	332,122
Acres white pine given initial working - - - - -	115,415
Acres white pine given second working - - - - -	12,783
Percent given initial working 49.7%, second working 5.6%	

Nursery Sanitation

Seven white pine nurseries, of which four are federal and three private, were worked in 1937. Federal white pine shipping permits were applied for by six of these nurseries. Five were approved, one was denied because of the occurrence within the zone of a live swamp containing too many Ribes to be economically eradicated. The state has established control areas into which the movement of Ribes is controlled.

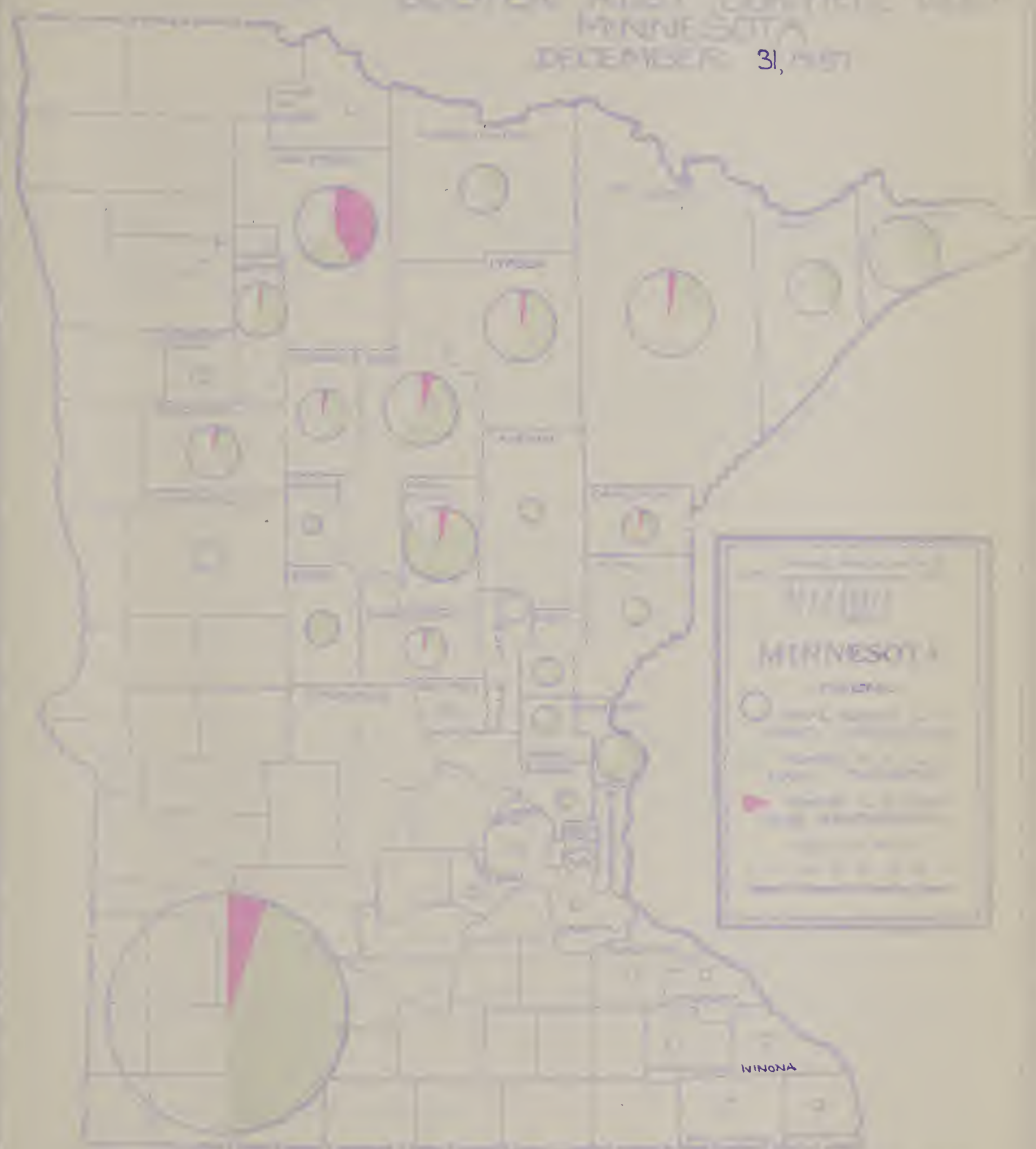
Cultivated Black Current Eradication

Initial work virtually completed prior to 1937 in white pine growing counties. To date 22,065 cultivated black current bushes in 2,998 locations have been destroyed. Practically no recheck work has as yet been done.

Recommendations for Future Work

The control program as conducted in recent years should be continued on the same or larger scale with the objective of establishing and maintaining blister rust control around all valuable white pines in the state. Nursery sanitation should be continued. Cultivated black current recheck is planned.

STATUS OF BUSTER RISE CONTROL WORK MINNESOTA DECEMBER 31, 1951



Legend: Green = Completed; Yellow = In Progress; Red = Not Started. Size of pie chart corresponds to number of projects. Scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

Status of Blister Rust Control Program on December 31, 1937

Ohio

Blister Rust Conditions

In 1937 rust on Hibes was found for first time in Lorain County in north central part and in Fairfield County in south central portion. To date rust has been reported in 13 counties on Hibes and four counties on pines. Infection is heaviest in the northeastern corner of the state.

White Pine

Since 1933 the use of white pine as planting stock has very greatly increased. This activity was augmented in 1936 and 1937 by the Soil Conservation Service. White pine is also increasing through natural reseedling.

Status of Local Control

Acres of white pine worth protecting - - - - -	8,490
Acres of white pine given initial working - - - - -	4,445
Acres white pine given second working - - - - -	615
Percent given initial working 52.3%, second working 7.2%	

Nursery Sanitation

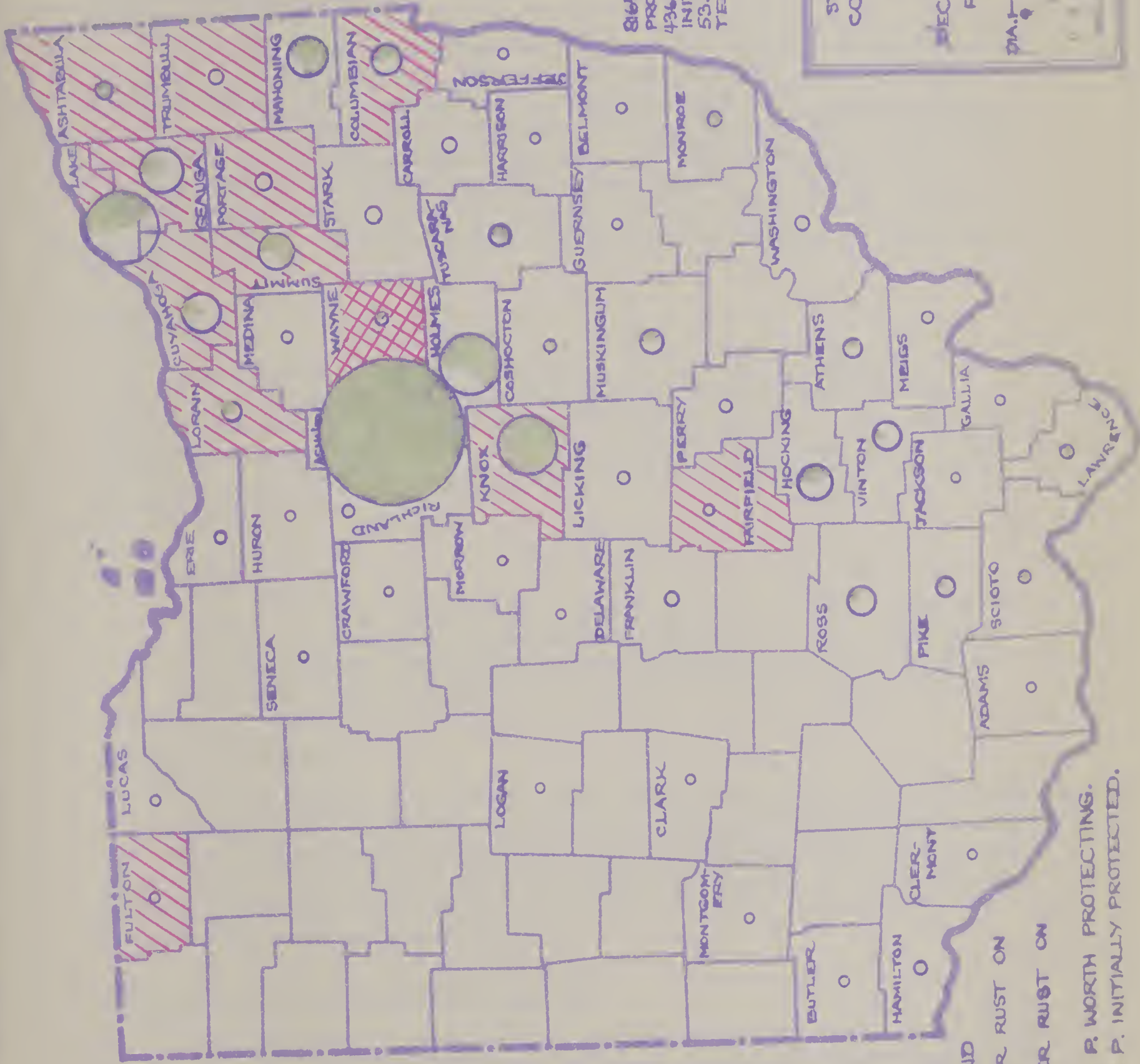
Northeastern Ohio is one of the big nursery centers of the country. In 1937 nursery sanitation was performed around seven private, one state and two federal nurseries. Nine of these nurseries applied for and received federal white pine shipping permits. Under a state regulation nursery sanitation must be performed before nurseries are allowed to ship white pines within the state.

Cultivated Black Currant Eradication

The cultivated black currant eradication campaign started in 1936 under a state W.P.A. project was continued through 1937 and virtually completed in white pine growing counties. By December 31, 1937, 68,109 cultivated black currant bushes in 7,734 locations had been removed almost completely from 35 counties and incompletely from 10 additional counties.

Recommendations for Future Work

Pre-eradication surveys should be completed as soon as possible around all past and current pine plantings. Continue present program to complete initial working around all white pine stands justifying such costs. Provide for subsequent workings where necessary. Cooperate with nurserymen growing white pine in order to produce white pine planting stock free from blister rust. Scout for the rust yearly.



LEGEND

- /// BLISTER RUST ON RIBES.
- /// BLISTER RUST ON PINE.
- WHITE P. WORTH PROTECTING.
- (WHITE P. INITIALLY PROTECTED.

865 ACRES W.P. WORTH PROTECTING.
4365 ACRES W.P. WORKED INITIALLY.
53.5% INITIALLY PROTECTED.

STATUS OF CONTROL WORK IN

OHIO

DECEMBER 31, 1937

PINE AREA SCALE

Status of Blister Rust Control Program on December 31, 1937

Wisconsin

Blister Rust Conditions

In 1937 the known limits of blister rust in Wisconsin was extended, particularly on Ribes in the southeastern portion of the state. During 1937 rust on white pines was reported for the first time from Brown, Florence, Kewaunee, La Crosse, Manitowoc, Marinette, Monroe, Sauk and Trempealeau Counties. Infection on Ribes was found for the first time in Kenosha, Milwaukee, Racine, Walworth and Waukesha Counties. By the end of 1937 rust had been found on Ribes in 56 counties. In 47 of these counties pine infection had also been found.

White Pine

White pine is an important tree in the state, not only for forestry purposes, but also aesthetically. Due to improved fire control methods and forestry practices the acreage of white pine re-seeding naturally is increasing. In addition there is a substantial addition to white pine acreage yearly due to the extensive planting of this species.

Status of Control

Acres of white pine worth protecting - - - - -	349,227
Acres of white pine given initial working - - - - -	186,256
Acres of white pine given second working - - - - -	12,606
Percent given initial working 53.5%, second working 5.6%	

Nursery Sanitation

During 1937 nursery sanitation was performed around five federal, three state, and two private nurseries. Seven of these nurseries applied for federal pine shipping permits, and six received them. One application was not approved due to the presence within the zone of a live swamp containing so many small Ribes bushes that it was not possible to economically eradicate them all.

Cultivated Black Currant Eradication

The campaign to eliminate cultivated black currant bushes from pine growing counties, started in 1934 was virtually completed in 1937, and the recheck of these counties was well started. To date 34,887 cultivated black currant bushes in 5,851 locations in 51 counties have been destroyed. The initial work is completed in 51 counties. Recheck is completed in six and partially completed in 10 of these counties.

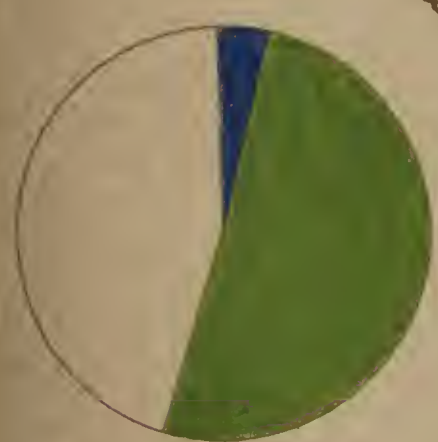
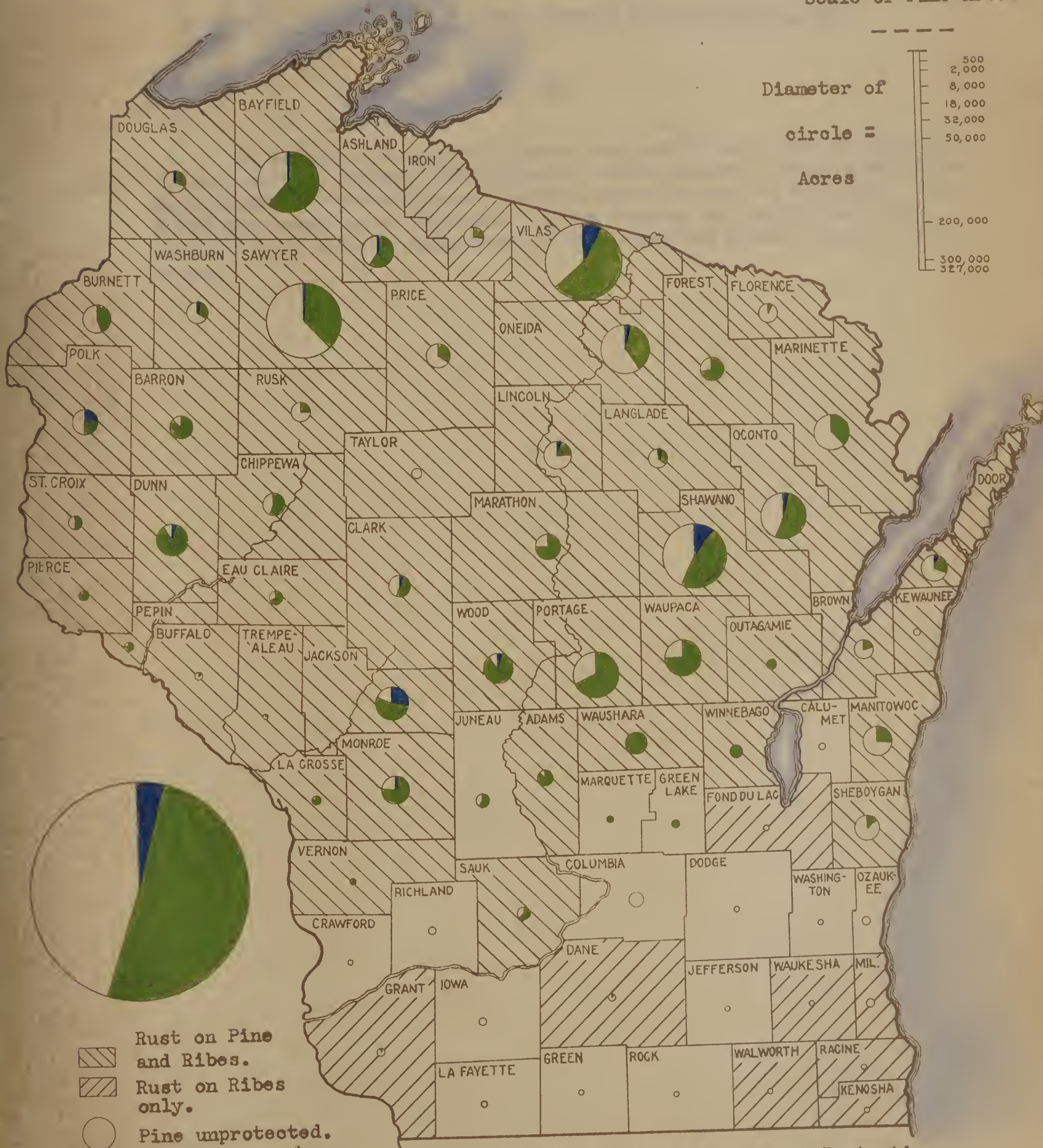
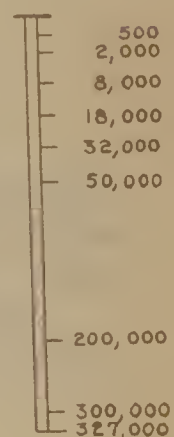
Recommendations for Future Work

The control program as conducted in recent years should be continued on the same or larger scale with the objective of establishing and maintaining blister rust control around all valuable white pine stands in the state. Nursery sanitation should be continued. Cultivated black current recheck should be done yearly.

STATUS OF CONTROL WORK IN WISCONSIN

Scale of Pine Areas

Diameter of
circle =
Acres



- Rust on Pine and Ribes.
- Rust on Ribes only.
- Pine unprotected.
- Pine worked once.
- Pine worked twice.

327,060 Acres W.P. Worth Protecting.
178,130 Acres W.P. Worked Once.
12,606 Acres W.P. Worked Twice.
54.46% Initially Protected.

Status of Blister Rust Control Program on December 31, 1937

Nebraska

No definite program of blister rust control has been inaugurated in this state. However, Mr. Lubberts, state leader of Iowa, spent three days searching for cultivated black currants in eastern Nebraska. Over 3,000 properties were inspected without finding any cultivated black currants. To date no infection has been found on either Ribes or white pines.

Organization

The North Central Region control program of 1937 was administered under the same general organization as prevailed during the three preceding years; viz., the regional leader at Milwaukee, state leaders each in Michigan, Minnesota, Wisconsin, Iowa and Ohio and temporary state leaders in Indiana and Illinois. The state leaders in Michigan and Illinois were paid from state funds. All of the other leaders were paid from federal regular funds. The work in each state was performed in close cooperation with the state cooperators as in the past.

A more complete description of the organization in the North Central Region is given in the Blister Rust Control Report for 1936. On an accompanying sheet is given graphically the organization of the work in this region during 1937.

Authorization for Work

As in the past several years the work was conducted under a Memorandum of Understanding drawn up between the responsible state agency and the Bureau of Entomology and Plant Quarantine. For a detailed description of the Memorandum of Understanding and for other memoranda governing our work reference is made to the 1936 Annual Report.

Cooperating Agencies

During 1937 the general blister rust control program was conducted by contributions from several programs and agencies. Briefly the contributions from each agency or program were as follows:

State Cooperation

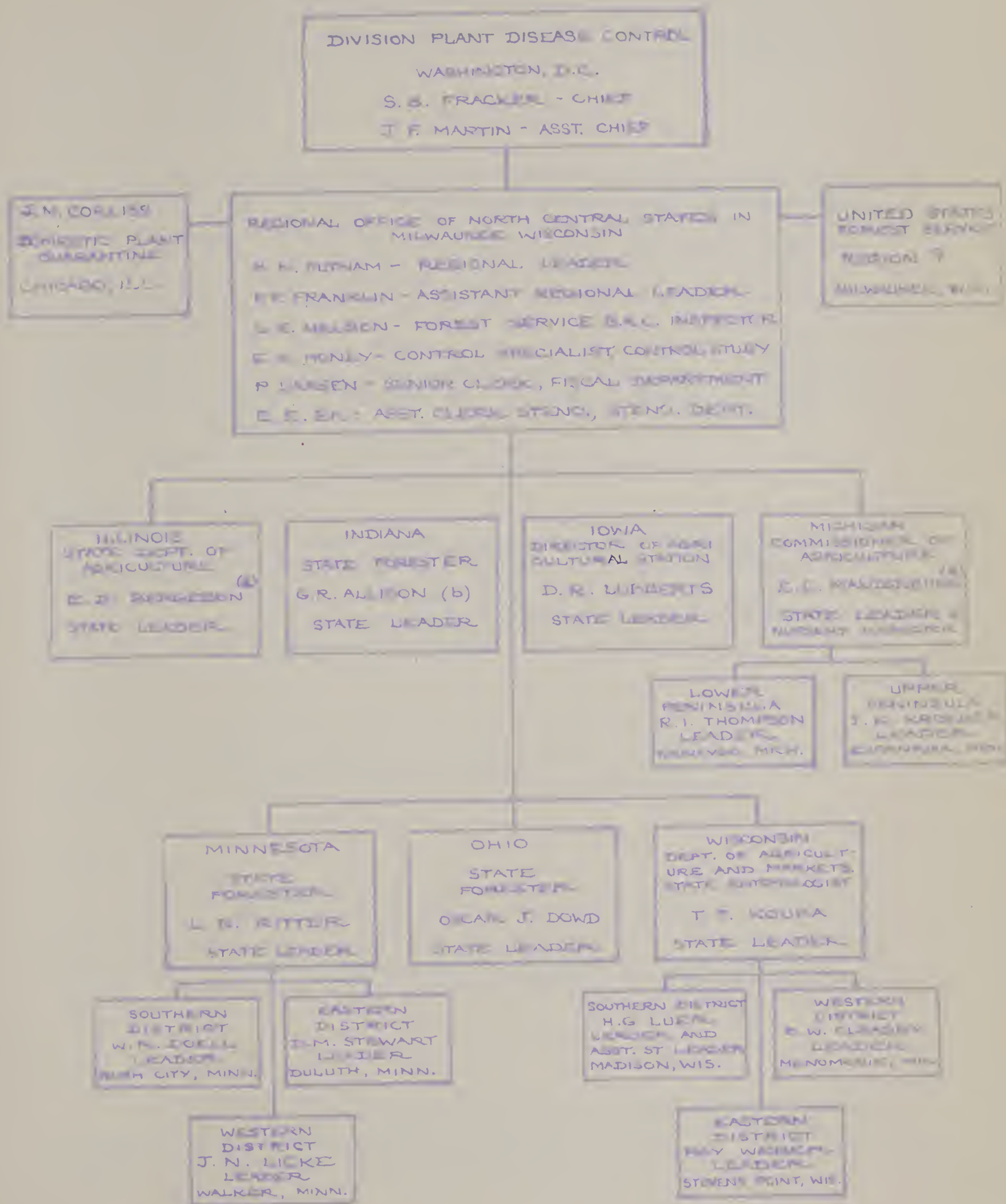
Cash Allotments: This includes actual cash from state sources either as a direct appropriation or as an allotment from an existing appropriation. Usually these funds were used to employ supervisors or foremen.

Contributed Services: This includes the value of contributed time by the various state cooperators, office space, stenographic services, supplies, storage, etc.

Private Cooperation

This includes the money or labor furnished by private owners under the supervision of blister rust foremen for the protection of pine stands or nurseries. In some states this item also includes the estimated value of cultivated Ribes sacrificed by owners for the protection of white pine stands.

ORGANIZATION OF DIVISION OF NORTH CENTRAL
REGION 1937



(a) STATE EMPLOYEE

(b) PART TIME

Federal Regular Funds

This money was used almost exclusively for the salaries of part of the regional office personnel, state leaders and a few district leaders. Only a small portion of these funds was used for other than salaries except for the purchase of five passenger carrying cars used in the region.

E.C.W. Technicians

The E.C.W. fund of \$1,000 per month as set up in 1933 for the employment of three technicians was continued until the end of July 1937. Up to this time these funds had been allotted direct from Washington and did not constitute a charge against Region 9. They were entirely withdrawn at the end of July and the three technicians assigned to giving technical direction to blister rust control work on the national forests in the three lake States were carried on C.C.C. funds assigned to the region during the month of August. On September 1 it was not possible to continue these three men. Arrangements were made, however, for carrying one man, Mr. Leiton E. Nelson, on C.C.C. funds assigned to the region to continue the work in the entire region formerly carried on by three men.

Forest Service C.C.C.

After July 1, 1937, the program, formerly designated as E.C.W. (Emergency Conservation Work) was known as C.C.C. (Civilian Conservation Corps). This item includes the wages, salaries and travel expenses of enrollees and foremen performing blister rust control out of C.C.C. camps on national forests.

Indian Service C.C.C.

This includes wages and salaries of enrollees, foremen and supervisors performing blister rust control on lands under the jurisdiction of the Indian Service in Wisconsin and Minnesota.

State C.C.C.

This item includes not only the cost of wages and salaries of enrollees and foremen working on blister rust control out of State C.C.C. camps but also in Michigan and Wisconsin it includes the full time costs of C.C.C. checkers working on blister rust control. Each checker had under his supervision the work in from three to ten C.C.C. camps.

Parks C.C.C.

This includes the salaries and wages of enrollees and foremen performing blister rust control work on lands under the jurisdiction of National Park Service. Work was confined to municipal, county and state parks.

Soil Conservation Service C.C.C.

In the Southern portions of Minnesota, Wisconsin and Michigan and at various places in the four lower states, particularly Ohio and Indiana, white pine was planted for Soil Conservation Service purposes. The salaries and wages of men out of S.C.S.-C.C.C. camps engaged in blister rust control work around these white pine plantings are included under this item.

Forest Service F.R.A.

A small amount of F.R.A. funds administered by the Forest Service was used in the employment of laborers, chiefly performing nursery sanitation, under the supervision of our bureau.

State W.P.A.

In Ohio the relatively large cultivated black currant eradication program sponsored by the state as a State W.P.A. project started in 1935 was continued and nearly completed in 1937. The work was under the technical supervision of the state leader of Ohio. These funds were used in the employment of reliefers, foremen and travel expenses necessary in this work.

Federal W.P.A.

Approximately 53.7% of all blister rust control funds used in 1937 was furnished through the Federal W.P.A. program. These funds were used for the employment of a limited amount of supervision, foremen and laborers, for necessary travel and other expenses. Wages were paid in accordance with prevailing authorized rates in each state. The work done on these funds embraced all blister rust control activities with the exception of Ohio where no black currant eradication was performed on these funds. Additional details of the Federal W.P.A. program are given later in this report.

Resettlement Administration

In Michigan these funds were used in the employment of labor protecting white pine stands under the jurisdiction of the Resettlement or Farm Security Administration.

N.Y.A.

These funds were used in Michigan, Minnesota and Ohio chiefly for part time employment of college students in working up data or making maps in the office.

Federal W.P.A. Program

General

To December 31, 1937, the amounts allotted and spent of F.W.A. funds for blister rust control work in this region were as follows:

Allotment	Amount	Spent to	Balance	% Used to
	Allotted	Dec. 31, 1937	Dec. 31, 1937	Dec. 31, 1937
001089	725,893.00	725,084.49	808.51	99.99%
201085	508,880.00	559,328.15	7,651.85	98.67%
501082	134,740.00	129,551.29	5,188.71	98.15%
501008	5,000.00	2,180.00	2,820.00	72.37%
Total	1,430,213.00	1,416,143.93	14,069.07	99.02%

The allotments 001089 and 201085 expired on June 30, 1937. Allotment 501082 was available to June 30, 1938. Allotment 001089 was used only for administrative expenses in the Milwaukee office. The actual amount of these funds used in the calendar year 1937 may be seen in Table 39.

As in the past, the regional leader at Milwaukee was continued as project manager and the funds for all the states were handled through the Milwaukee office and paid from the Treasury Accounts Office at Madison, Wisconsin. In cooperation with each state leader budgets were prepared by months for each state's sub-allotment, such as appointments salaries, non-relief salaries, relief salaries, travel, supplies and reserve. These budgets were in accordance with existing requirements as to the 95-5 ratio and the overall man-month cost limitation. The expenditure of funds was in accord with the budgets as ascertained by frequent comparisons, thus assuring strict compliance with the requirements.

These W.P.A. funds were used for the employment of district leaders, supervisors, foremen and laborers. In the Milwaukee office as well as in the state and district offices these funds were also used for the employment of clerks and stenographers. Wage rates used were those authorized by each State W.P.A. Administrator. In general, use of these Federal W.P.A. funds in blister rust control work was very successful.

Number of Men Employed

A careful and accurate record was kept of the number of man-months employed by states, months and classification of men. In Table 1 there is shown the approximate number of man-months employed by months in the Milwaukee office. In Table 2 there is shown the number of man-months employed for the entire region, including Milwaukee, by months and programs. Table 3 gives the number of man-months employed by states and classification of men. In Table 4 there is shown the number of man-months used on the Federal W.P.A. program only by states, positions and months. In all of these tables it must be remembered that the man-months of employment under the Federal W.P.A. program are accurate and actual as derived by dividing the number of hours on each payroll by the number of assigned hours per month. In the case of programs other than the W.P.A. it was not possible to so accurately derive the man-months.

The material in Table 2 is shown graphically in Chart 1. In this chart the total employment on blister rust control has been grouped

in four classes, viz., Semi and Regular, U.S.D., Federal - W.P.A., and all other programs. If this chart is compared with the corresponding chart in the 1936 report it will be noted that in the first place a much smaller number of men, particularly those working on the W.P.A. program, was employed during the year. In the second place while the number of men employed on the W.P.A. program was approximately the same during the winter months in 1936 and 1937, the number of men employed on this program during the summer months of 1936 was practically four times the number employed in 1937 during the same months. Thus in 1937 the number of men employed per month on all programs varied from 393 to 1,210 while in 1936 the number of men employed varied from 366 to 1,582. The increase in the number employed during the summer months of 1937 was chargeable chiefly to the use of U.S.D. labor since the number of W.P.A. men employed remains fairly constant throughout the twelve months. The number of men employed on "all other programs" was largely composed of men working under the State W.P.A. program in Ohio.

Chart 3, based on Table 4, shows the employment of persons working on the Federal W.P.A. program by classes and months. This chart brings out graphically the fact that the employment of W.P.A. men during the active field season was less than twice the number of W.P.A. men employed during the winter months. If this chart is compared with a similar chart for 1936 the contrast in employment in the active and inactive months during the two years will be noted. In 1936 the number employed during June to September was approximately six times that of the winter months. The relatively small number of men employed during the field season of 1937 is due entirely to the reduced funds available for such work.

In Chart 5 the material in Chart 2 has been reduced to percentages. Effective April 1 if it was necessary to employ at least 80% from the relief rolls, leaving not to exceed 20% from the non-relief rolls. From January 1 to April 15 it was permitted to employ not over 10% from the non-relief rolls. For the year as a whole it was possible to employ nearly 80% from the relief rolls.

Wage Rates under W.P.A.

During 1937 wage rates used on the blister can control project compared to those used on other W.P.A. projects in the same counties or districts, where it happened that state-wide rates used in 1936 prevailed until June 30, 1937. On and after July 1, 1937, county rates were used also in Wisconsin. The authorized hours per month, while they varied between states, were fairly constant in each state with the exception of Wisconsin and Minnesota where they varied locally between different counties.

The range of hours and rates used in this region in 1937 is shown in Table 12. Not only did the rates and hours vary widely within each state but also these rates and hours were subject to frequent changes which made it most difficult to make up Table 12. In some cases, particularly Wisconsin, the range of minimum hours and monthly wages shown was derived directly from payrolls. The average monthly earnings during 1937 was directly derived from our abstract sheets which were based entirely on payrolls.

Figure 1. Monthly mean precipitation (mm) for the period 1961-1990. The data are presented in the form of a bar chart, with the x-axis representing the months of the year (Jan to Dec) and the y-axis representing the precipitation in mm (0 to 100). The bars are color-coded: blue for precipitation, red for evaporation, and green for the difference (precipitation minus evaporation). The values for each month are: Jan (25), Feb (20), Mar (25), Apr (20), May (40), Jun (60), Jul (55), Aug (70), Sep (45), Oct (30), Nov (25), and Dec (20).

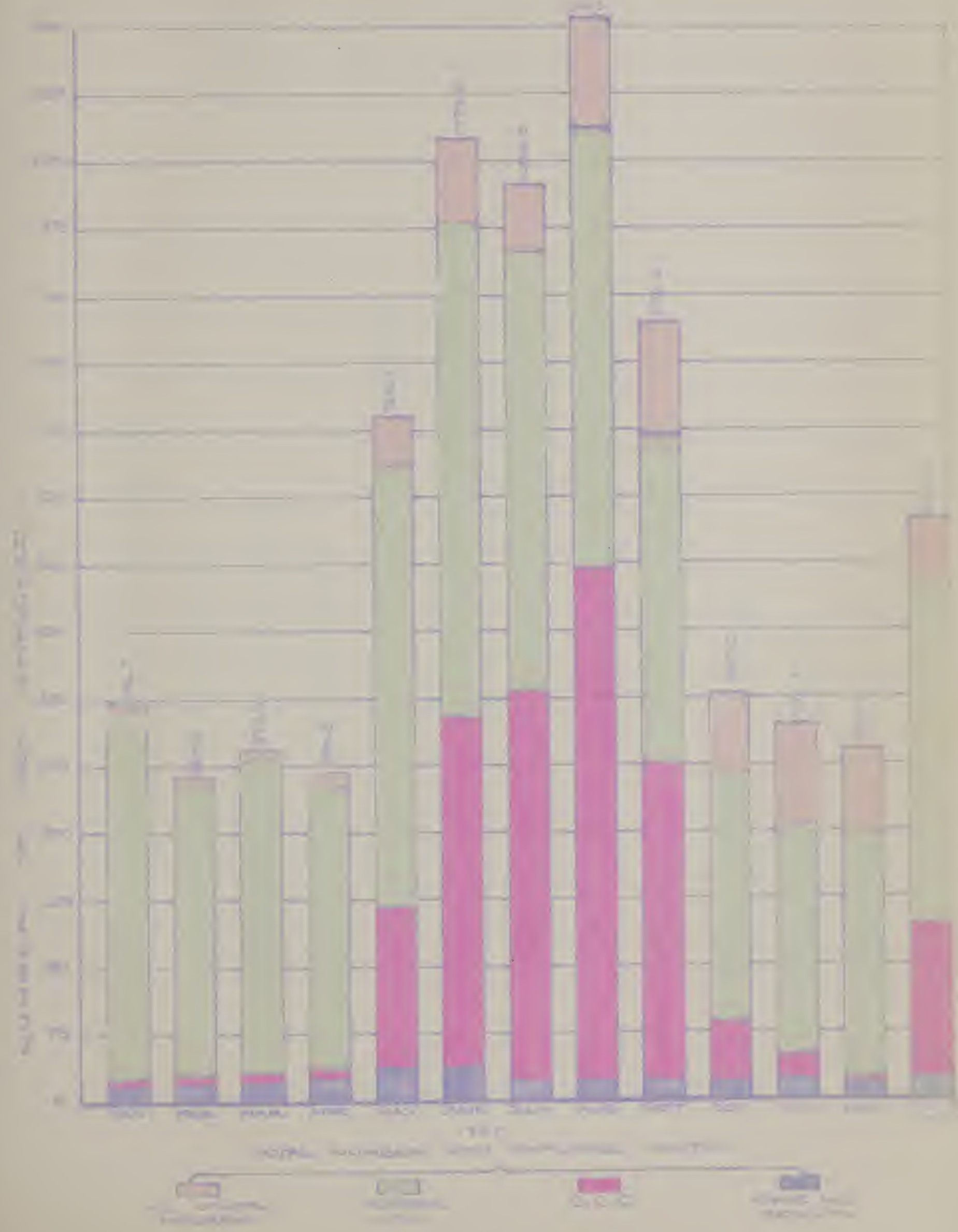


TABLE 1. Monthly variation of mean water level in
 the main channel of the river (1937-1940) and
 1941-1942. (Source: Ministry of Agriculture, 1942)

1937

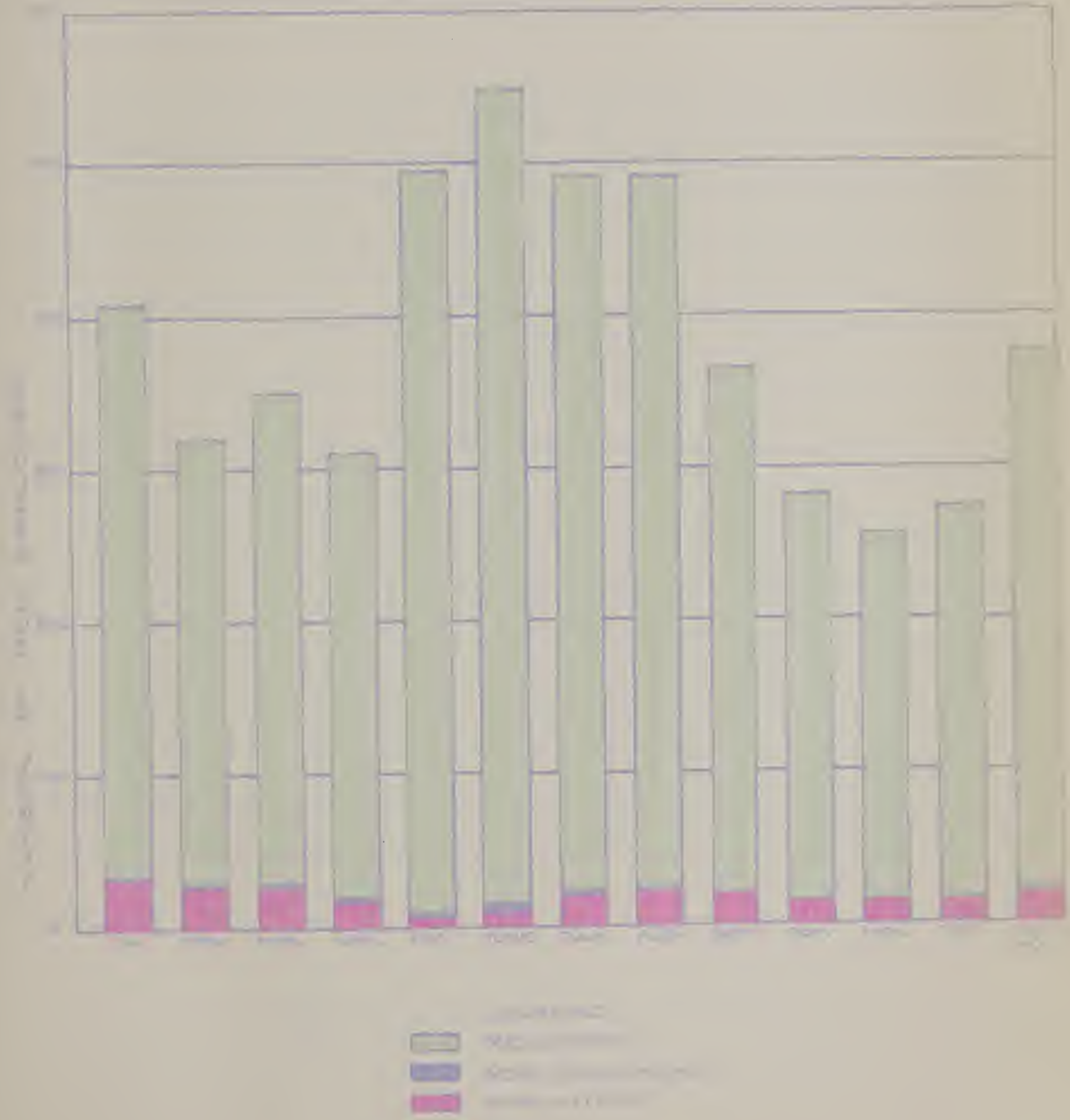
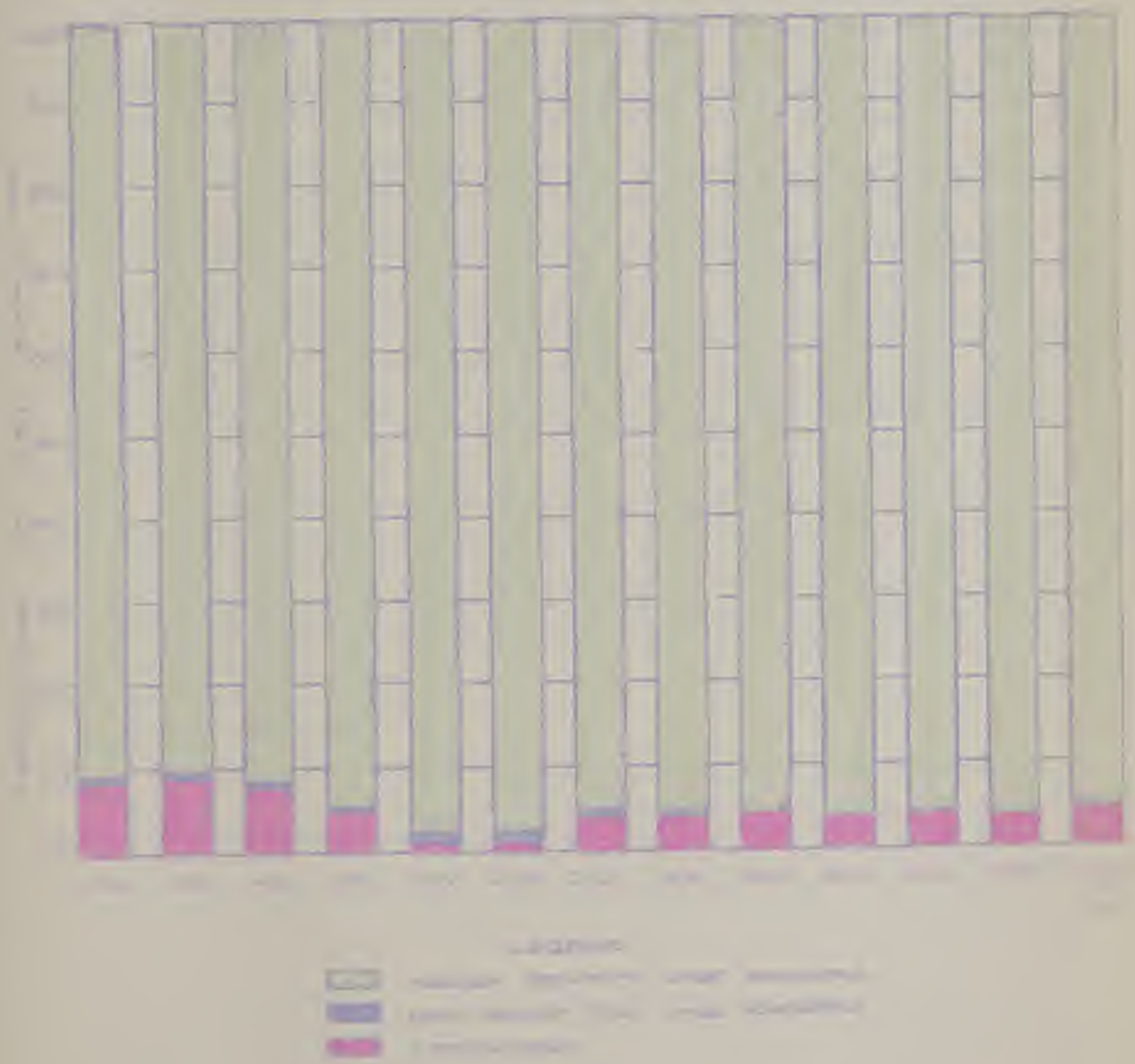


Figure 10. Monthly precipitation (mm) for the period 1961-1990. The data are presented in a bar chart showing the monthly distribution of precipitation. The x-axis represents the months from January to December, and the y-axis represents the precipitation in millimeters. The bars are colored green, indicating the monthly precipitation values.



In Table 43 there are shown by states the total costs under the Year W.P.A. allotments for the calendar year 1938. These costs are divided into salaries of employees, non-reliefers and reliefers and also non-salary items. Note that for the region as a whole including Milwaukee the total overall man-month cost is \$46,531. Of this total \$38,881 was for salaries and \$7,751 was the average non-salary cost per man-month. The average wage paid reliefers throughout the region was \$33.87 per month. In general, the non-salary cost per month was smallest in the three Lake States where the largest number of reliefers was employed. It was low in Illinois because the state paid the expenses of the state leaders.

7.7.4 Cooperation

Excellent cooperation was obtained from each state administrator and from the several District W.P.A. offices with reference to obtaining and making for our work. In many instances well qualified men working on other projects were transferred to our project.

One of the difficult problems to solve was the matter of transporting workers to and from the job. Since many of the areas to be protected in this region are scattered widely with relatively only a few man days of labor at each place, the transportation problem was a big one. The problem was successfully solved in a number of ways. Government-owned trucks were used to the extent they were available; personal car mileage for security wage earners was authorized at a rate of 15 cents per mile for a limited number of miles per month; for short distances security wage earners drove their own cars at no cost to the government. In this last case often the riders shared the cost of transportation.

The response of security wage earners to our work was gratifying. It was only clear to some at the outset that blighter bug control was not merely made work but was part of a long and continuing program of cooperative control work essential to the future life of white pine woods. Many of the security wage earners became so much interested that they voluntarily worked additional hours of their own time, particularly in the matter of cleaning their work, spraying and controlling masses of white pine.

Compensation Data

There was a decided decrease in the number of compensation cases reported in the region in 1937 as compared with 1936. On the basis of 4,383.1 man-months under the W.P.A. program this represents 2.76 compensation cases per 1,000 man-months, as may be seen in Table 44. In 1936 there were 67 compensation cases reported which, on the basis of 12,035.4 man-months, represented 7.23 cases per thousand man-months or nearly three times the number per thousand man-months reported in 1937.

Strangely enough again as in 1936 the accident rate was comparatively highest in the Milwaukee office. In 1936 there were two compensation cases and in 1937 there was one reported. Owing to the small number of man-months in the Milwaukee office the compensation rate per 1,000 man-months was high.

In 1937 eye injuries led. In 1936 the number of eye injuries was also high with a relatively large number of poison ivy cases. Strangely enough in 1937 there were only two poison ivy cases reported. Weather conditions in 1937 were decidedly more moist than in 1936. Perhaps this difference in weather conditions was responsible for the fewer number of poison ivy cases in 1937.

Automobile Accident Cases

During all or a greater part of 1937 there were 25 passenger-carrying automobiles and 41 pickup trucks, a total of 64 government cars operating in the region.

A gratifying lack of Automobile Accident reports involving these cars can be made for the calendar year 1937. Only three accidents, all minor, were reported. These are summarized below.

1. Dodge pickup, 1935 License U.S.D.A. 38-281.
Place - near Walker, Minnesota.
Date - October 8, 1937.
Cause - car hit buck deer unexpectedly crossing road. Brakes good, accident unavoidable.
Damage to government car - broken headlights, crushed right front fender, bent radiator.
2. Essex coupe, 1934 License U.S.D.A. 58-143.
Place - near Fly, Ohio.
Date - August 26, 1937.
Cause - rock thrown by tire of passing Greyhound bus hit and broke windshield of government car.
Damage to government car - broken windshield.
3. Chevrolet coach, 1934 License U.S.D.A. 13-557.
Place - Akron, Ohio.
Date - August 26, 1937.
Cause - private automobile failed to stop at stop street, hitting government car on left side. Fault of driver of private car.
Damage to government car - left front fender, left door, left running board damaged.
Owner of private car paid for full repair of government car in amount of \$86.10.

Spread of the Rust

Weather conditions during 1937 were favorable to the spread of the rust. In addition to finding an increased local spread in areas previously known to be infected a decided southern spread of the rust was discovered on Ribes in the last part of the summer in northern Illinois, southeastern Wisconsin and in north central Iowa. The 1937 infection centers found and the general status of infection are listed below by states.

Illinois - During the late summer and fall of 1937 Mr. Garrison spent the major portion of his time scouting for the rust, particularly in the northern part of the state. He found 16 locations of infected cultivated black currants out of 254 locations examined. These infected locations were found as follows: Two in Boone County, thirteen in Lake County, two in McHenry County and one in Winnebago County. The only previous blister rust infection known in the state was found by Mr. J. W. Corlies in the fall of 1936 on cultivated black currant bushes at Warren, Jo Daviess County. Ribes infection has been found in all but one of the six northernmost counties in Illinois.

The finding of an unexpectedly large amount of Ribes infection in northern Illinois indicates not only favorable weather conditions but also the strong probability of the presence of at least a few fruiting cankers, especially in Lake County.

An analysis was made of the stages of the rust found at different dates during the late summer and fall of 1937. It was surprising to find so much as 90% of the infected surface bearing uredinia as late as September 16, 1937. After this date very few uredinia were found and most of the infected surface bore telia. On October 26 no uredinia were visible. The infected surface was divided equally between telia and necrotic areas.

Indiana - Very little scouting for the rust was done in Indiana in 1937 and no rust was found. In August 1936 Messers. Sheals and Franklin found infection on Ribes cynosbati and R. alpinum in the central portion of LaGrange County. One infected R. cynosbati was also found in LaPorte County near Lake Michigan. These two infection areas are the first naturally introduced infection in Indiana.

Iowa - In September 1937 six cultivated black currant bushes were found infected in one location at Emmetsburg, Palo Alto County, in the northwestern part of the state. To date infection found in Iowa has been quite spotted. Pine infection was found on imported white pine and destroyed in Lyon County in 1917. Pine infection was also found in Story County in 1931 and in Dubuque County in 1934. Ribes infection has been found in Lyon County in 1917; in Linn, Fayette and Story Counties in 1928; in Dubuque County in 1934 and in Palo Alto County in 1937.

Michigan - Ribes and pine infection is quite generally distributed throughout the state with the rust severe and reaching the damage stage at several points in Upper Michigan, in Marquette and Dickinson Counties and at a few points in Lower Michigan, especially in Newaygo County. Infection was found for the first time in 1937 on pine in Axtell County and on Ribes in Arenac, Gratiot, Livingston, Oshtemo, Shiawassee, Washtenaw, Wayne and Olinson Counties. To December 31, 1937, rust had been found in 28 counties on pine and 65 counties on Ribes.

Minnesota - Infection is generally distributed throughout the pine-growing areas of Minnesota. It has been known to exist in the

state on pines since 1916. Pine infection is particularly severe in general vicinities of Duluth, Rush City and nearby points. Although no new counties were added to the list of known infected counties, additional infection, both on pines and Ribes, was found in 1937. A severe pine infection was located in northeastern St. Louis County, approximately 50 miles north of any known pine infection center in the county. Infection apparently originated here in 1935. About 80% of the pines examined was found infected. By the end of 1937 Ribes infection had been found in 26 counties and pine infection in 26 counties. Pine infection and Ribes infection have not both been found in all of these counties. One or the other of the host plants has been found infected in 31 counties.

Ohio - During 1937 infection on Ribes was found for the first time in Lorain County in the northern portion of the state and in Fairfield County in the south central portion. By the end of 1937 infection on Ribes had been found in 12 counties and on white pine in four counties. It is believed that the eradication of 55,000 cultivated black currant bushes throughout the pine-growing counties of the state during 1935, 1936 and 1937 has materially retarded the spread of the rust in Ohio.

Wisconsin - The outstanding discovery in the spread of blister rust during 1937 was the finding of the rust on Ribes in southeastern Wisconsin along the Illinois border. This finding of the rust gives further evidence of the existence of undiscovered pine infection centers in northeastern Illinois and southeastern Wisconsin. A decided increase of the known extent of the rust both on Ribes and pine was found in 1937. On white pine, infection was found for the first time in nine counties, viz., Brown, Florence, Genesee, Ia Grove, Manitowish, Marinette, Monroe, Sauk and Trempealeau. On Ribes, infection was found for the first time in Kenosha, Milwaukee, Racine, Walworth and Waukesha Counties. To December 31, 1937, Ribes infection has been found in 58 counties and on white pines in 47 counties.

White Pine

General

In the 1936 report there is given a statement of estimated value of white pine in this region amounting to \$63,000,000. For detailed estimates on which this value is based the reader is referred to the table on Page 59 of the 1936 Annual Report. No attempt is made to alter this valuation for the 1937 report.

The acreage of white pine in this region is decidedly on the increase. This is due not only to the very active program of planting white pine by Federal, state and private agencies in the region, but also to better methods of fire protection and improved forestry practices. Weather conditions during 1937 were favorable to germination and growth of white pine seedling is naturally. In Table 9 it will be noted that of the total 1,161,014 acres listed for protection, 1,071,533 acres were native white pine, 44,125 were planted and 45,790 were white pine planting sites. The acreage listed for protection is not a static figure. At the present time it is continually on the

Summary. Field observations made in 1936 disclosed the fact that many areas, previously listed as second priority white pine, have now come in to white pine so abundantly that they have been reclassified to first priority white pine.

Ownership

The ownership status of white pine in the region is in a constant state of flux. Forest lands have been reverting to counties and states through tax delinquencies. Ownership is changing hands very rapidly due to the acquisition program by the U. S. Forest Service and State Conservation Departments. In Table 2 an attempt has been made to classify white pine lands into five ownership classes, viz., Federal-Forest Service, Federal-Indian Service, State, County and Municipal, and Private. Too much dependence should not be given to the accuracy of these estimates. Even if they were accurate they would already be out of date. However, the material in Table 2 can be considered as an approximate status of ownership. In Chart 2a is shown graphically the acres of white pine listed for protection in each ownership class. It will be noted that for the region as a whole 16% of white pine was under Federal-Forest Service ownership, 4.5% under the Federal-Indian Service, 22.4% under State, 3.8% under County and Municipal and 53.2% under Private ownership. It is highly probable that much of the white pine listed under Private ownership is tax delinquent.

Pre-eradication Survey

A description of the methods and purposes of making pre-eradication surveys is given in the 1936 and previous annual reports and will not be repeated here. It is sufficient to state that the making of complete and accurate pre-eradication surveys around pine stands to be protected is one of the most important phases of the general control program and is the basis for all future work.

Pre-eradication Survey Work 1937

In Tables 5 and 6 are given statements of pre-eradication survey work performed in 1937 around white pine stands and around white pine planting sites, respectively. It will be noted in Table 5 that 554,361 acres were mapped around 105,083 acres of white pine requiring an estimated total of 167,184 man-days to perform the indicated protection work. A total of 11,693 man-days was used in the survey costing \$65,186.42. Thus the cost per acre mapped amounts to slightly less than 10 cents per acre. In this connection it may be noted that the cost of survey per acre to work in Minnesota amounts to slightly less than 38 cents. The reason for this added cost is that in Minnesota a much more intensive pre-eradication survey is performed and the acres that can be located are actually located at the time the pre-eradication survey is made. Although theoretically the cost of this work should be charged against local control, it has been charged to pre-eradication survey for the sake of simplicity.

In Table 6 is shown the pre-radiation survey work performed around white pine planting sites by states and ownership. It will be noted that 58,406 acres were surveyed around 50,289 acres of white pine planting site requiring an estimated 6,542 man-days to do the indicated protection work. A total of 406 man-days was used in the survey costing \$1,879.50. This is at the rate of approximately 3 cents per acre surveyed. As a sound policy in this region white pine is planted only on areas which are essentially fire-free or which can be made so at a low cost. It will be noted that of the 58,406 acres surveyed 55,088 were acres that could be covered by the spot method. On many of these acres the pre-radiation survey was all that was required in the way of protection costs.

In Table 7 there is shown the total pre-radiation survey work around both white pine and white pine planting sites classified by state and ownership. This table is a combination of Tables 6 and 8 without the cost figures. It will be noted that 513,785 acres were surveyed which would have to be worked to protect 183,371 acres of white pine and white pine planting sites. It is estimated that 171,000 man-days would be required to do the indicated control work.

Cumulative Pre-radiation Survey Work

In Table 8 there is shown the status of pre-radiation survey work at the present time classified by states. It will be noted that for the region as a whole 85.0% of all pre-radiation survey work has been completed. In Indiana and Iowa approximately two-thirds of the total area listed for protection has been given pre-radiation survey. In Indiana there has been a decided increase in the last few years in white pine planting. This is due to the Soil Conservation Service and the State Conservation Department activities. Practically no work of any description was done in Indiana during 1937 except for a small amount of pre-radiation survey work in January 1937. As a consequence at the end of 1937 there remains a large number of acres of planted white pine which need to be covered by pre-radiation survey and protected. It is known that a large majority of these plantings is in the southern part of the state where fortunately fires are very scarce. The areas of white pine remaining to be covered by pre-radiation survey in Iowa are white pine shelterbelts lying outside the counties where control work is now in progress. It is expected that as time goes on these shelterbelts will also be surveyed and protected.

In the three Lake States many of the white pine areas remaining to be surveyed are in inaccessible places.

The accuracy of pre-radiation survey estimates of the number of man-days required to do a given control job has been checked at various times by comparing the estimated man-days with the actual man-days when a control job is completed. While no statistical relationship of this sort is shown here, it is apparent that recent pre-radiation survey estimates are much more accurate than they were formerly.

Local Control in 1937

General

Local control work performed in 1937 is shown in Tables 10 to 13 classified by states, agencies and listed separately for initial, mop-up and second eradication.

It will be noted from Table 13 that a total of 15,808,034 Fibes was pulled from 310,513 acres in furnishing protection to 75,183 acres of white pine and 9,330 acres of white pine planting sites. This work used 73,822 man-days and cost \$230,970.70. On the per acre basis 30.9 bushes were pulled, .24 man-day was expended, and the cost amounted to 74 cents per acre worked.

The volume of work done in 1937 was very decidedly better than performed in 1936. Less than half the acreage was worked in 1937 than in 1936. In 1936 there were over three times as many Fibes destroyed as in 1937 and there were nearly three times as many man-days used in 1936 as in 1937.

Slightly more than 90% of the work done in 1937 was initial eradication.

Approximately 70% of the total acreage worked in 1937 was performed by the scout method and 30% by the crew method. By contrast, in 1936 80% of the acre was worked by scout and 20% by crew.

As will be noted eradication work in 1937 was performed by 12 agencies, five of which were under the U.C.O. or E.C.R. programs. Approximately 36% of the acreage covered was worked by the U.C.O.; 23% by Federal-W.P.A.; and 1% by all other agencies.

Only a relatively small acreage was covered in mop-up - 2,513 acres in the region. The great majority of mop-up work, 2,382 acres, was performed in Wisconsin, as may be seen in Table 11. Since mop-up, as the name implies, is simply additional working of areas unsatisfactorily worked the first time either the same year or the year previous, the acres worked and acres protected in mop-up are not included in the totals. The reason for this, of course, is that these acreages have already been reported under initial eradication.

In Table 12 there is given a statement of second eradication performed in 1937. Of the total of 29,112 acres worked as second eradication in 1937, 19,580 were in Michigan.

There follows a statement covering local control in each of the states:

Illinois

All of the initial work in Illinois was performed under the W.P.A. program. Second eradication was performed by the W.P.A., Parks-C.O.O., and private owners. As may be observed, most of the work in 1937 consisted of second eradication. Of the total 2,598

acres worked, 1,308 were worked the second time and 583 acres were worked initially. All of the initial eradication was performed by W.P.A. labor and was confined to Winnebago County. The use of C.C.C. labor was confined to the Pines State Park worked for the second time. Private labor was furnished by Governor Lowden for the continued protection of his planted pine stands and was considered as second eradication. Previous workings around Governor Lowden's pines after 1933 were considered as mop-up work.

Excellent cooperation was obtained from the W.P.A. organization in furnishing a good quality of labor for control work. The men showed an interest in their jobs and as a result good work was done. Attention is called to the apparently more effective work performed per man-day under the W.P.A. organization than by the C.C.C. as shown in Table 10. The W.P.A. crews used approximately .36 man-day while the Parks-C.C.C. used 1.41 man-days to work an acre. The number of Pines pulled per acre under W.P.A. was 96 and under Parks-C.C.C. 126. This does not mean necessarily that the work of the W.P.A. crews was as superior as the work of the C.C.C. crews as the data would indicate. In the first place the hours worked per day by the C.C.C. was six and one-half and by the W.P.A. eight hours. In the second place the C.C.C. crews at the Pines State Park worked the area very intensively with men close together in the crews in order to get all of the small bushes.

Indians

No local control work performed in 1937.

Iowa

In Iowa the control program chiefly concerned the protection of white pine shelterbelts. All control work performed was initial work done under the W.P.A. program. This program has proved to be entirely workable and effective. The workers were usually chosen from a group of eligibles two or three times the size of the crew actually employed. The work in the state was scattered over a number of counties with work in any given area sufficient to employ a crew for the full season. In this way there was a decidedly low labor turnover and an experienced crew was used throughout the season after the initial training period. The crew usually consisted of four men in the unskilled labor class and one man in the skilled labor class. As far as possible government cars were used to transport these crews, one car being assigned to each crew. Where no government car was available personal cars were operated either at government expense at 4 cents per mile, or, if the distances were short, at no cost to the government.

In Iowa a greater degree of responsibility was placed on the crew foreman than in any of the other states. Owing to the fact that shelterbelts were scattered, requiring only very few man-days at each shelterbelt, the crews were relatively far apart and it was the responsibility of the crew leader not only to run his crew efficiently but also to maintain the shelterbelt crews.

A total of 728 shelterbelts containing 340 acres of white pine was protected by removing 518,023 Pines from 45,563 acres. This work used 2,534 man-days of labor and supervision, costing \$11,884.92.

Average figures per shelterbelt are interesting. It was necessary to work approximately 80 acres around each shelterbelt. This used 3.4 man-days. However, around each shelterbelt on the average it was only necessary to work 1.8 acres by crew, leaving approximately 58.2 acres which were in cultivated fields. This represented 87% of the total acreage in the control zone was started and 5% had to be worked by crew.

Michigan

In Michigan, as in the past few years, there were chiefly two sources of labor for control work, viz., C.C.C. and W.P.A. Crew organization was essentially the same; i. e., in a group there were 30 laborers, four crew foremen and one supervising foreman. In general under the W.P.A. program the supervising foreman was a skilled-laborer, the crew foremen intermediate-laborers, and the crew men were unskilled-laborers. Each crew was composed of five unskilled-laborers and one intermediate crew foreman. The State and District W.P.A. offices cooperated in a very satisfactory manner and for the most part good men were obtained.

In the C.C.C. program there was not the same direct control over the personnel and it was necessary to use the men allotted for the work whether or not they were well adapted to such work. Although good results were obtained from both the C.C.C. and the W.P.A. organizations it was evident that more effective and economical control work was performed under the W.P.A. than under the C.C.C. program. The W.P.A. employees were local, mature citizens who had a direct interest in the welfare of their communities. The C.C.C. enrollees were younger, more irresponsible and consequently did not have the same interest in the work as the W.P.A. employees. However, good work was performed also by the C.C.C. enrollees. The quality of their work depended very largely upon the quality of supervision.

Nearly 15% of the 120,627 acres worked in Michigan was initial eradication. The average number of Sikes pulled per acre on initial work was 56.3 as compared with 20.7 on second eradication. On the average for all work done in 1937 practically 87 Sikes were pulled per acre at a cost of .20 man-day per acre.

Of the 120,627 acres worked in 1937, 80,509, or approximately two-thirds of them, were worked by adult.

Minnesota

Local control in Minnesota in 1937 was carried on chiefly through the C.C.C. program working on Forest Service, Indian Service and state lands and by the W.P.A. working on all ownerships but chiefly private.

Under the W.P.A. program several methods of Sikes eradication were used as follows:

Crew Eradication - Standard crew of five men and a crew foreman. The men in line were spaced six to twenty feet apart. The crew foreman checked back and forth behind the line.

Scout Crew - This consisted of three or four men working 50 to 100 feet apart. It was used in working areas where Ribes were present only in potholes or other spots favorable for their growth, or in pastures where the bushes were large and scattered. The scout crew must be composed of experienced eradication labor if effective results are to be secured. This type of eradication was not extensively used in 1937 due to the lack of trained men.

Pre-eradication Check Crew - Especially in the western parts of Minnesota white pine area a considerable portion of the white pine stands grow in mixture with jack and Norway pine in light soils. As a general rule Ribes are absent on this type of soil and it is only necessary to find potholes where Ribes bushes occur. The method of working such areas was by means of a pre-eradication check crew. This consisted of a compass man with one or two men on either side of him. The Ribes found on a strip 13.2 feet wide were recorded as in the regular check. All scattered bushes found were pulled. Depending on the size of the pothole or other area where Ribes are concentrated, the crew either gathered together and pulled the Ribes before resuming its forward movement or the area was delimited and worked by a regular crew at a later time. This type of work is a systematic method of scouting and can only be entrusted to experienced men.

Approximately two-thirds of the 59,331 acres worked in 1937 in Minnesota were performed under the W.P.A. organization. Indian Service-C.C.C. was second with 10,386 acres worked. Through the Forest Service-C.C.C. 2,882 acres were worked. Only a very small acreage was covered by State-C.C.C.

From Table 13 it is apparent that the number of Ribes pulled per acre, 102.7, average for the state, was higher than in any of the other states. The Ribes were particularly numerous on work done by the Indian Service-C.C.C. In spite of the large number of Ribes pulled per acre it is apparent that economical work was done. From the data it appears that very good work per man-day was accomplished under the Indian Service-C.C.C. program where it will be noted that Ribes at the rate of 118.8 per acre were destroyed at the expenditure of .30 man-day per acre. Under the W.P.A. program Ribes at the rate of 98.6 were destroyed at an expenditure of .21 man-day per acre. Man-days reported in Minnesota are all converted to an eight-hour man-day.

Of the total of 59,331 acres worked in 1937 in Minnesota, approximately 88% was initial working and 12% was second working.

Approximately 35% of the total acreage worked in 1937 was crew work and 65% was covered by either pre-eradication check or scout crew.

The work accomplished in Minnesota during 1937 was in the other states was greatly reduced over what was done in 1936. This

was due entirely to the curtailment of the relief program. In 1937 less than 40% of the 1936 acreage was worked.

Ohio

Local control in Ohio during 1937 was performed by the State-S.C.C., Soil Conservation-S.C.C. and the Federal-W.P.A. program. A total of 17,135 acres was worked. Approximately 90% was initial work and 10% was second working.

From Table 13 it will be noted that an average of 25.2 Ribes per acre was removed at a cost of .37 man-day per acre. This is somewhat higher than in the other states due chiefly to the fact that areas worked were scattered necessitating the frequent training of green men on the work.

Local control in Ohio chiefly centered around plantings with the native white pine mostly concentrated in the Mohican Forest in Ashland County.

Particular mention must be made of the excellent cooperation furnished by the Soil Conservation Service program. White pine was used extensively by this service as planting stock. Prior to planting pre-eradication surveys were made by the blister rust control organization. On the basis of this survey the Soil Conservation Service made its decision as to whether or not white pines should be used, depending primarily on the cost of Ribes eradication. If control work was decided upon the work was done by the Soil Conservation-S.C.C. under the direction of the state leader.

The organization of the eradication crews was similar to that of recent years; i. e., the crew usually consisted of five unskilled laborers in line under the supervision of an intermediate crew foreman. Where sufficient work was outlined more than one crew was employed on a given area and in this event the two or more crews were under the supervision of a skilled man handling all the crews.

Over twice as much acreage was covered in 1937 as in 1936 in Ohio. The reason for this was that relief funds available for control work were larger in 1937 than in 1936. During 1936 the chief effort in Ohio was the prosecution of a cultivated black currant eradication program under a State-sponsored W.P.A. project.

Approximately 50% of the area worked in 1937 was covered by scout and 50% by crew.

Wisconsin

Local control in Wisconsin used substantially the same organization as in the past few years. Under the W.P.A. program this organization consisted of a five-man crew of unskilled laborers with an intermediate laborer in direct charge. Three to five of these crews worked under the supervision of a skilled laborer and an appointed supervisor had charge of the work in one or more counties. The State-S.C.C. control program was also the same as in the past.

few years. In this organization a group of 15 to 30 men was divided into squads of five to seven men each under the direction of a leader. Each group was under the supervision of a foreman assigned to the camp. The control work in two to five camps was under the supervision of one of the four junior plant pathologists working on C.C.C. funds directly responsible to the state leader. Control work performed on Indian Service lands was done in the same manner as in recent years and the organization was quite comparable to that of the State-C.C.C. except that the foreman in charge of the work on each reservation was directly responsible to the District Agent.

In addition to the agencies described above work was also done through the Parks-C.C.C. and the Soil Conservation Service-C.C.C. programs. A small amount of private cooperation was also furnished.

Practically 97% of the 85,406 acres worked in 1937 was initial working.

During 1937 85,406 acres were worked to protect 30,753 acres of white pine and 7,800 acres of white pine planting site by removing 6,421,317 Ribes at a cost of 29,066 man-days.

In the state as a whole Ribes at the rate of 75.2 per acre were removed at a cost of .34 man-day per acre. There was a great variation in the number of Ribes pulled per acre under the different agencies, varying from .1 Ribes per acre under the S.C.S. program to 431.4 Ribes per acre on Indian Service lands. On the Indian Service Areas it cost 1.48 man-days per acre worked to do the necessary Ribes eradication. The value of the pines protected on the Indian Reservations, however, was so great that the Indian Service officials felt the cost was justified.

As in most of the other states, with the exception of Ohio, there was a material reduction in the work done in 1937 from that done in 1936. Over twice as much acreage was covered in 1936 as in 1937. The reason for this decrease was the material reduction in funds from emergency relief sources.

Splendid cooperation was received from all of the agencies cooperating in control work in Wisconsin in 1937.

Analysis of Ribes Eradication in 1937

Three Ribes eradication types are recognized and used in this region, viz., lowland crew, upland crew and scout. A description of these three types is given in the 1936 Annual Report and will not be repeated here.

In Table 16 there is given an analysis of Ribes eradication by eradication types and states. Iowa is omitted from this table because the information did not lend itself to this treatment. Chart 2 has been constructed to bring out certain relationships in Table 16.

Chart 3: Amounts allocated to each subcategory of the total of 1000



Amounts allocated to each subcategory of the total of 1000



Amounts allocated to each subcategory of the total of 1000

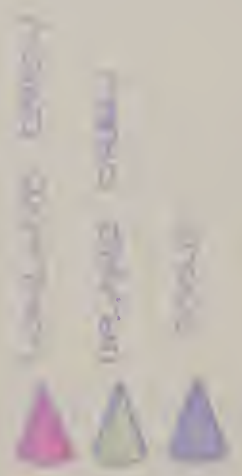


Amounts allocated to each subcategory of the total of 1000

1000
650
300
50

1000
650
300
50

1000
650
300
50



As can be readily recognized there is a wide difference in the costs and Ribes per acre in these three types. For the region as a whole note in Chart 4 that 5.9% of the total worked area was covered by lowland crew. On this relatively small proportion of the area 45.2% of the Ribes was pulled and 32.8% of the man-days was expended. At the opposite end of the scale 61.6% of the total area was covered by scout, only 1.9% of the Ribes was pulled and 6.9% of the man-days was used. Upland crew work may be considered as intermediate between these two extremes. Approximately 32.5% of the area was worked by upland crew, 52.9% of the Ribes was pulled and 60.3% of the man-days was used.

The average number of Ribes pulled per acre on these different types also varies widely. On lowland crew there was an average of 489.9 Ribes per acre, on upland crew 100.3 and in scout work 1.9. The number of man-days used per acre varied correspondingly. As would be expected a much larger number of Ribes was pulled per man-day in lowland crew work where the bushes were concentrated than in either the upland crew or scout work where Ribes were more scattered. Work in lowland crew types is almost entirely devoted to pulling bushes with searching time at a minimum.

The average number of Ribes per acre in lowland types varied from a high of 735.9 in Minnesota to 315.4 in Michigan. In upland crew work Ribes per acre varied from 190.6 in Minnesota to 52.4 in Michigan. The Ribes found in scout work were consistently low in all of the states, ranging from .5 in Ohio to 2.7 in Wisconsin.

Checking

It is humanly impossible to find and destroy all of the Ribes growth on an area and keep the cost of such work within economical limits. It is necessary, therefore, to establish a maximum allowable Ribes population remaining on an area after Ribes eradication. Past experience has shown that a normal Ribes eradication crew can economically work an area and leave not more than 25 feet of live stem per acre. Examinations of areas worked in the east several years after Ribes eradication have demonstrated that effective control of the disease has been obtained by ordinary systematic Ribes eradication methods. For these reasons the maximum allowable measure of effectiveness of Ribes eradication has been set as 25 feet of live stem per acre. If the Ribes population after eradication materially exceeds this figure the area or portions thereof should be reworked.

The method of performing systematic checking after eradication is to cover the area worked by a one-man crew in strips 15.2 feet wide and usually 10 chains apart. This gives a 2% check of the area. The Ribes found are recorded by species, number of bushes and feet of live stem, by chains, and the information is later converted to a per acre basis.

There are several advantages of systematic checking as opposed to the qualitative examination of an area after eradication.

1. Actual figures are obtained on which to base a decision as to whether or not the area should be reworked.
2. The average size of bushes by species may be obtained. This has a direct bearing on the period elapsing before the next eradication.
3. The distribution of Ribes after eradication can be obtained by noting on the map the locations of the chain transects on which bushes were found.
4. The number of people able to do systematic checking is large. Anyone who knows Ribes, can run a compass, pace, and has good eyesight can perform systematic checking. He does not necessarily have to have had long experience in Ribes eradication.
5. In the qualitative examination of an area after eradication where no data are taken two men of equal experience in Ribes eradication might conceivably judge differently as to whether or not the area should be reworked.

The results of checking after Ribes eradication in 1937 are given in Table 27. In Tables 28 and 29 material in Table 27 is shown as percentages. Chart 5 presents pertinent information in Table 27 graphically.

For the region as a whole please note that actual strip surveys taken on 2,740.75 acres, covering 139,587 acres worked and checked, Ribes were found at the rate of 4.0 bushes and 9.3 feet of live stem per acre.

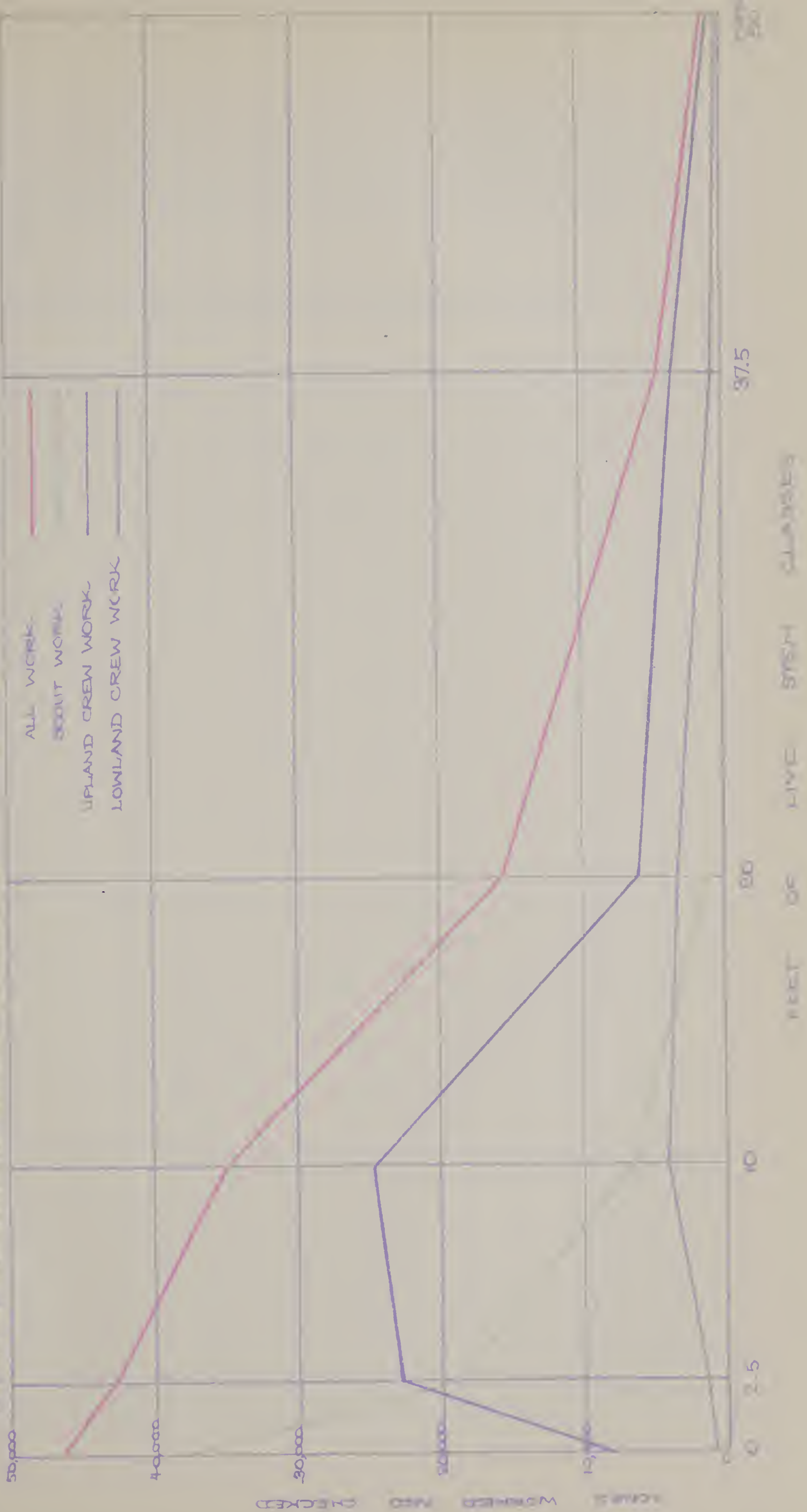
With the exception of Iowa the average feet of live stem found in each state was decidedly below the allowable 25 feet per acre. In Iowa only the upland crew work was checked. Systematic checking in Iowa was confined primarily to areas of high Ribes concentration and, therefore, the figures are much higher for the entire state. Areas showing a large number of Ribes after eradication have been reworked but check figures after such reworking are not shown in this table.

The largest number of bushes and feet of live stem per acre found after eradication was on lowland crew work. The average size bush found on lowland crew was 1.6 feet of live stem, on upland crew 2.3 feet of live stem and on scout work 4.0 feet of live stem.

It may be noted that practically 97% of the total acreage worked showed less than 25 feet of live stem per acre after Ribes eradication.

The relationship in number of acres worked and checked in the three eradication types is graphically shown in Chart 6. Note

CHART 5 SHOWING ACRES WORKED IN 1937 CLASSIFIED BY RUBBER TYPES INTO FEET OF LIVE STEM CLASSES REMAINING AFTER ENCAIDICATION. NORTH CENTRAL REGION. BASED ON TABLE #7.



that most work showed by far the greatest acreage in the Ribes-free class and the least acreage in the 15 to 25 feet of live stem class. Although upland crew work showed only 12.1% Ribes-free after working, 51.1% of it had less than 15 feet of live stem, while only 59.4% of lowland crew work had less than 15 feet of live stem.

Local Control Accomplished to December 31, 1957

In Tables 17 to 24, inclusive, are given the accomplishments of local control in each state and for the region as a whole by years. Charts 5 to 8, inclusive, are based on Table 24. From these tables and charts it is obvious that only a very small amount of control work was done from 1917 to 1932 and that over 98% of the 5,079,333 acres initially worked in this region to date has been covered in the last five years, almost entirely on emergency funds. This acceleration of work of both initial and second eradication is shown graphically in Chart 8. The rust was first discovered in this region in 1917. Efforts were first directed toward the actual eradication of the disease. These efforts proved hopeless and a limited amount of control work was performed in the years 1917 to 1920 in Minnesota and Wisconsin. The earliest Ribes eradication efforts in this region were made in Minnesota in 1917. In fact, from 1917 to 1919, inclusive, Ribes eradication was performed only in Minnesota. In 1920 a relatively large scale local control operation was started in Wisconsin during which year nearly 11,000 acres were initially worked. During the years 1924 and 1926 no local control was performed in this region. In 1926 and 1927 the only work done was in Wisconsin, where a total of only 455 acres was worked both years. In 1928 local control was started for the first time in Michigan when 1,500 acres were worked to protect initially 107 acres of white pine. During the years 1928 to 1931 there was a gradual increase in local control work performed chiefly using owner's labor supervised by men employed under state and federal funds. In 1932 the largest amount of local control work to date was performed chiefly in Michigan and Wisconsin, using practically for the first time labor employed on state relief funds and supervised by men employed on regular and state funds. In 1938 impetus was given to the work through the use of U.C.C. employees. The year 1932 marked the beginning of local control work in Illinois when Governor Lowden furnished labor to protect his plantings of 500,000 white pine trees, and the state of Illinois furnished labor to protect the pines in the Pines State Park near Oregon. In 1938 local control work started chiefly on U.C.C. funds in Indiana, Iowa, and Ohio. During the latter part of 1938 Fire funds became available in each of these states for blister rust control work, although these funds became available so late in the year that only a small amount of local control work was performed. In 1939 local control was still further increased by the use of U.C.C. labor and also WPA labor. Funds from this latter source were used chiefly to employ supervisors who in turn supervised labor for local control furnished through the W.P.A. In 1939 W.P.A. allotments for blister rust control work were made available and these have continued to the present time. The peak of accomplishment

Figure 4. Cumulative energy consumed by initial and second
 generations of *Chironomus tentans* and *Chironomus tentans*
 larvae. Results are shown in Table 3.



done in 1936 when 623,127 acres were worked initially. Second eradication started in this region in 1938. To date 128,733 acres have been covered the second time. The shape of the curve showing second eradication will closely approximate that of initial eradication performed five to seven years previously.

The only third eradication done consists of 80 acres worked in Wisconsin on the Menominee Indian Reservation in 1938.

In Table 24 figures have been derived showing for each year the costs and Ribes pulled per acre, the Ribes pulled per man-day and the average cost per man-day. This material is shown graphically in Charts 7 and 8.

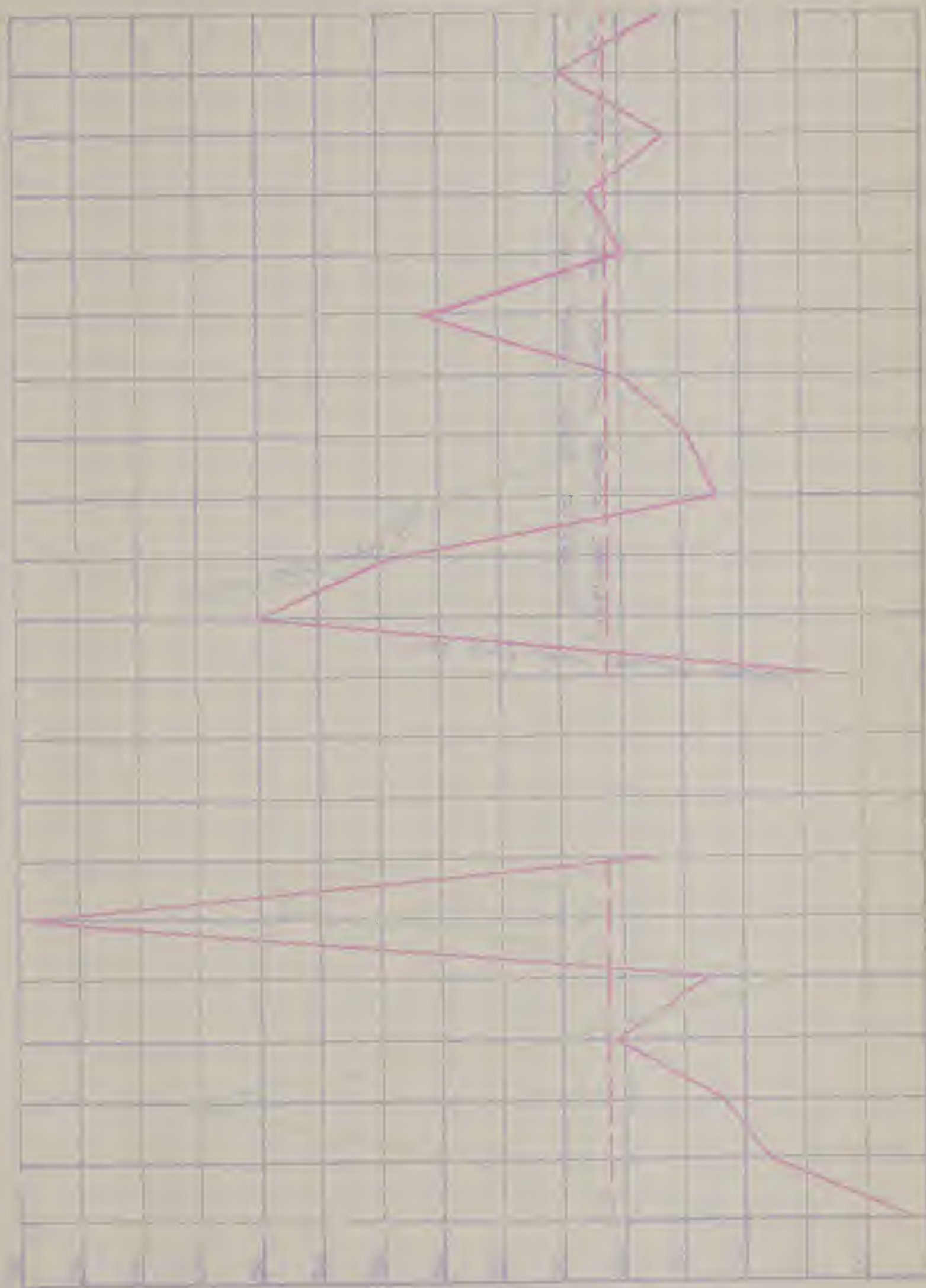
Reference is made to Chart 8 showing the Ribes pulled and man-days used per acre by years. As would be expected there is a small similarity from 1935 to 1937 between the curves showing the Ribes pulled per acre and the man-days used per acre. With the exception of the years 1929 to 1931 and 1935 to 1937 there was practically no similarity between these two curves. For example, in 1936 it took .30 man-day to pull Ribes at the rate of 25.2 per acre. In 1927 practically this same number of man-days per acre pulled Ribes at the rate of 125.3 per acre, or nearly seven times as many Ribes. Similar discrepancies are noticeable in the years of early workings. These discrepancies are probably due to several factors, chief among which was inexperience. Very often an area Ribes-free, or nearly so, would be worked by a crew in close formation. Previous to Ribes eradication there were no maps made or else the maps were entirely inadequate to show the concentrations of Ribes and what areas could be worked by crew and what areas could be safely scouted. Also it is undoubtedly true that the early records of Ribes eradication are faulty.

In Chart 7 there is shown Ribes pulled and costs per man-day by years. Quite surprisingly these curves, even in the earlier years, are fairly similar. This would indicate that within limits better work was done by men paid the higher salaries. Although factors other than salaries make up cost per man-day the salary item is the biggest cost factor. A similarity of these curves is particularly noticeable in the years 1931 to 1935.

In Table 25 there is shown a total acreage listed for protection and acres initially protected to date by approximate ownership classes and states. This material is graphically shown in Chart 9a. This table and chart show the status of initial control work in this region at the present time. Note that 51.8% of the 1,381,814 acres listed for protection has been given initial working. The same percentage of pine acreage owned privately has been initially protected.

Chart 9a not only shows the percentage of white pine in each ownership class initially protected but also the relative amount of white pine in each of these ownership classes.

In Table 26 there is shown by states the estimated total acreage in the control area and the amount initially cleared of Ribes, covered by pre-eradication surveys but not yet cleared of



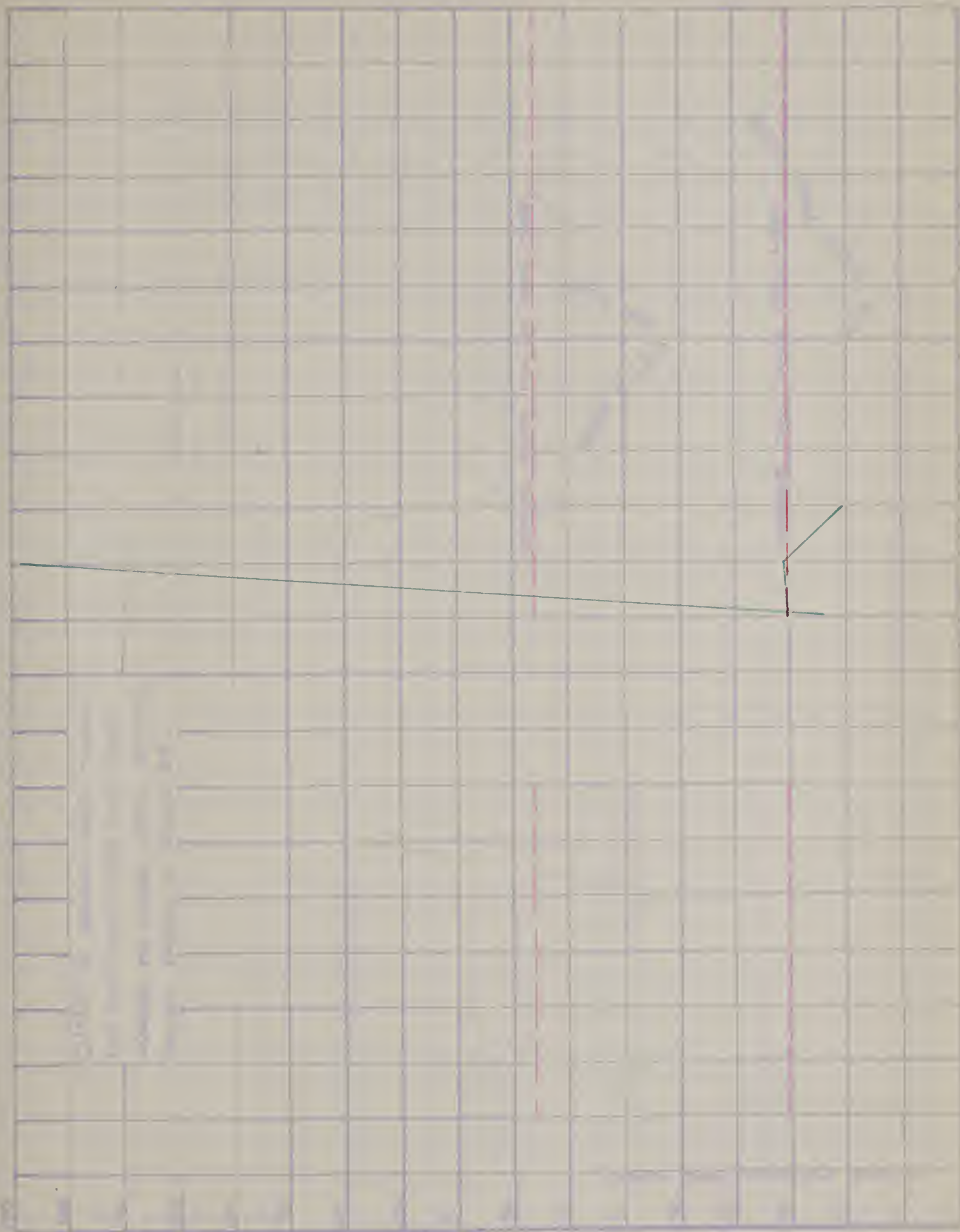
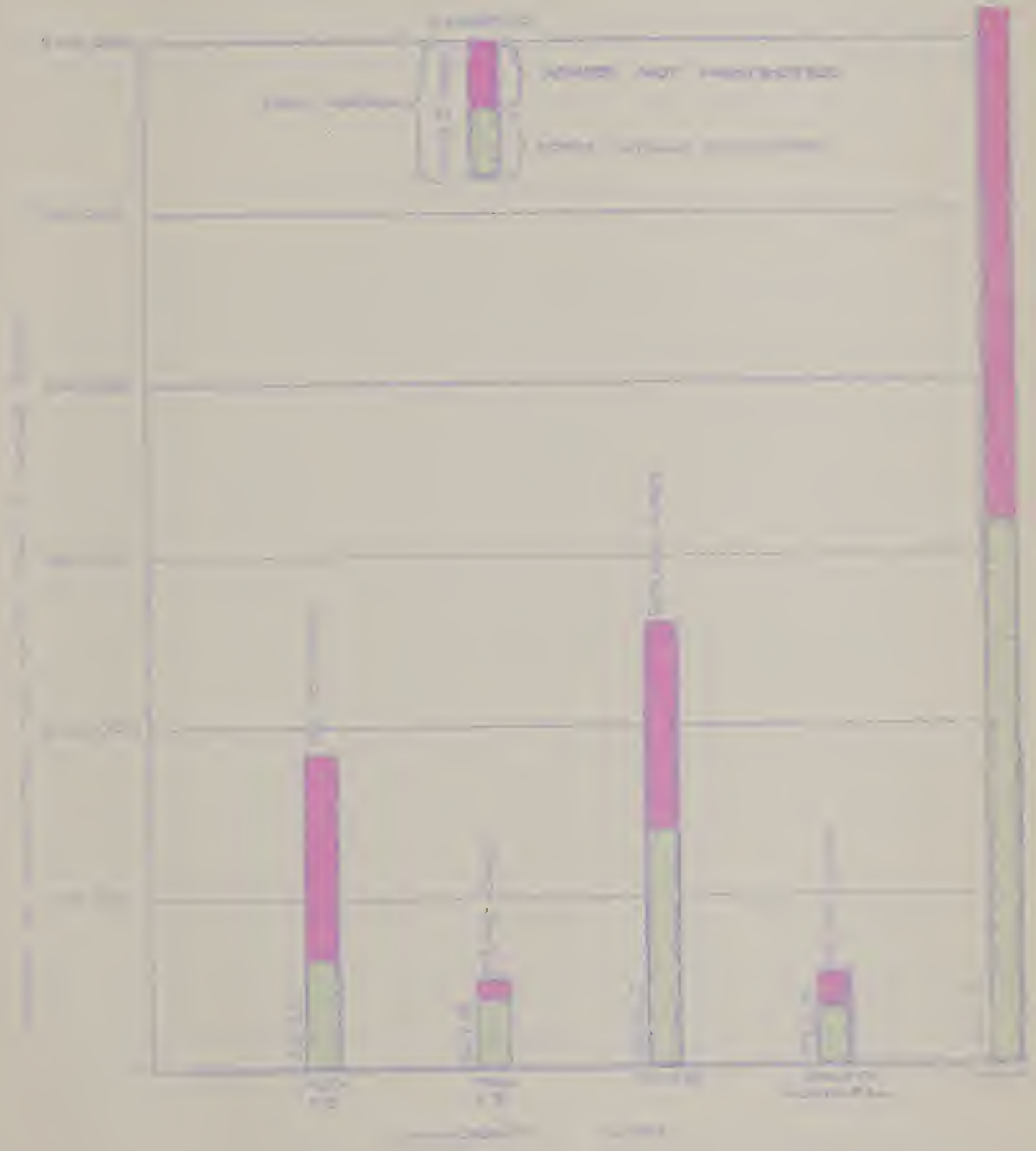


TABLE 1. - SUMMARY OF DATA FROM THE 1964-65 SEASON. The data were obtained from the 1964-65 season. The data were obtained from the 1964-65 season. The data were obtained from the 1964-65 season.



Ribes, and the acres neither cleared of Ribes nor surveyed. On the basis of control areas it is noted that only 45.2% is listed as initially covered while in Table 25 61.8% of the white pine is listed as initially protected. The reason for this smaller amount of control area initially worked is primarily due to the fact that the stands remaining to be protected are in general in smaller parcels, which results in the area necessary to be worked being proportionately higher. It will be noted in Table 28 that 18.1% of the total estimated control acreage had neither been cleared of Ribes nor surveyed.

Plans for the orderly continuance of the control program to bring the remaining unprotected acreage into initial protection and to furnish subsequent workings to those areas needing it have been made in each state.

Nursery Sanitation

During the spring of 1937 49 nurseries were either worked for the first time or checked for Ribes within the 1600 foot zone and cultivated black currant bushes for a mile. In order to make doubly sure that no Ribes exist within the 1600 foot zone it is necessary that this zone be checked annually for Ribes bushes. This is particularly true of all of these nurseries which have applied for a federal white pine shipping permit. The blister rust control organization worked in close cooperation with the Division of Domestic Plant Quarantines in this work. The Inspector for the Division of Domestic Plant Quarantines was kept informed as to when nursery sanitation work started around each nursery applying for a federal white pine shipping permit and when the work was estimated to be completed. When the work was actually completed the Inspector was notified immediately and he performed his inspection as soon as possible thereafter, usually accompanied by the state leader or blister rust agent concerned.

In Table 30 there is given a summary of nursery sanitation work in this region in 1937. Note that 18,120 acres were cleared of Ribes to protect 1,664 acres growing white pine in 48 nurseries. During this work 525,067 bushes were pulled at the expenditure of practically 4,466 man-days, costing \$15,382.61.

In 1936 41 nurseries were worked while in 1937 49 were worked. These additional eight nurseries were in Illinois. Owing to the finding of a considerable amount of rust on Ribes in northern Illinois it was expected that Illinois would be classified as an infected state and nursery sanitation was performed around these nurseries in anticipation of this action and in order to grow white pine stock free from blister rust.

The ownership status of the 49 nurseries protected in 1937 was as follows:

U. S. Forest Service - - - - -	11 nurseries
U. S. Indian Service - - - - -	1 nursery
U. S. Soil Conservation Service - -	3 nurseries
U. S. Farm Security Administration	1 nursery
State - - - - -	10 nurseries
Private - - - - -	31 nurseries
Total - - - - -	49 nurseries

In Table 30a there is shown the action taken by the Division of Domestic Plant Quarantines with respect to applications for white pine shipping permits. It will be noted that 29 nurseries applied for federal white pine shipping permits. Of this total 10 were federal, six were state and 13 were private. Two applications were denied. The reason for these rejections in the case of these two nurseries was the presence of a relatively large amount of swamp type within the nursery sanitation zone. These swamp types were so full of Ribes growth that it was humanly impossible to economically make them Ribes-free.

Cultivated Black Current Elimination

Cultivated black current elimination work was performed in all of the states in this region during 1937 with the exception of Minnesota and Indiana. A description of the manner of performing this work is given in the state reports and in the regional report for 1936. In general, cultivated black current work is performed after the active Ribes eradication season and weather permitting is continued through the winter months.

In Table 31 there is shown the results of cultivated black current elimination work in this region in 1937. It will be noted that within the region 2,712 locations were found and 2,873 were destroyed. The reason that the number of locations listed as destroyed is larger than those found is because several of the locations listed as destroyed were found in previous years. This is particularly true in Ohio and Wisconsin.

The most active initial eradication was performed in Ohio. During this year the extensive and systematic eradication of cultivated black currents throughout the pine-growing counties of the state, started in 1935 as a State-sponsored M.P.A. project, was virtually completed.

In Wisconsin and Michigan in addition to the initial work a considerable amount of cultivated black current recheck was performed in counties initially covered in previous years.

Further details of the findings on recheck work are shown in Table 32. Note that the bushes found on recheck work are classified as - (1) Missed originally, (2) Seedlings, (3) Sprouts and (4) Planted since original work.

The method of performing cultivated black current recheck work was similar in general to initial work. However, on recheck the crews were furnished with maps and data showing locations and numbers of bushes found during the initial workings. Both in Michigan and Wisconsin not only the original locations were inspected but also all areas were completely covered on recheck.

In Table 22 interesting information is shown as to the results of recheck work. In Michigan note that counties were rechecked in 1937 which were worked in 1932, 1934 and 1935. The percent of total locations or bushes found originally was derived by dividing the total of original locations found in 1937 and the first year into the total found originally and multiplying by 100. It is gratifying to find that the percent of bushes found originally averaged between 84% and 97% in both states.

The number of sprouts found on the recheck would indicate imperfect destruction of the bushes originally. It is gratifying to note that using the number of sprouts as a measure of efficiency in the destruction of bushes, the work both in Michigan and Wisconsin was approximately 98% effective.

A diligent search was made for cultivated black current seedlings on sites where these bushes had previously been destroyed. It is very encouraging to learn that no positively known cultivated black current seedlings were found. In one instance in Wisconsin one location was found containing approximately 2,000 seedlings of either Ribes nigrum or R. hirtellianum. Positive identification of these seedlings was not made.

Only a small number of cultivated black current bushes was replanted after the original eradication. In most cases it is believed that these bushes were replanted through ignorance rather than for the purpose of having cultivated black current bushes in defiance of the State law.

In Table 23 there is shown the status of cultivated black current eradication in this region to December 31, 1937. The initial work in Michigan, Minnesota, Ohio and Wisconsin is practically completed in the counties where white pine is grown in sufficient quantities to justify the work. No systematic cultivated black-current work has been done in Indiana or Illinois except within the mile zone of white pine-growing nurseries or other white pine areas. In Iowa it is estimated that 85% of the area scheduled for working has been completed. As time goes on it is entirely possible that additional counties, because of increase in the use of white pine, will also be covered for cultivated black currents in these states.

It will be noted that by the end of 1937 a total of 248,604 cultivated black current bushes growing in 28,530 locations had been destroyed. The effect of this mass destruction of cultivated black current bushes in very appreciably retarding the spread and intensification of the rust can not be made. However, there can be no doubt but that the combination of effective and timely local control work

and the wholesale destruction of cultivated black current bushes already has saved thousands of acres of white pine from blister rust. The effect of cultivated black current eradication moreover is one of lasting benefit.

Canker Pruning

Canker elimination was performed in Michigan and Minnesota in 1937. This activity was restricted to such areas as parks, cemeteries and roadsides where each tree has considerable value and where the stand has been protected against blister rust. Cankers removed from such areas not only restore the attractiveness of the trees, but also prolong their life. Canker removal also forestalls the possibility of misunderstanding on the part of the general public and the questioning of the effectiveness of control work. Canker pruning was performed during the winter time using W.P.A. relievers.

In Table 34 there is shown the statement of canker pruning done in 1937. In Table 35 this same information is shown cumulatively to December 31, 1937.

Control Zone Boundary Marking 1937

An activity new to this region was started in 1937 known as control zone boundary marking. As the name implies this work consisted in more or less permanently marking the outside limit of control zones to the ground. This marking was not necessary in all situations, particularly where natural boundaries such as roads, fences, rivers, etc. existed. It is of value, however, in such areas as swamps and woods where no natural limits are present. Especially it is important to mark clearly the limits of control work in swamps where the full 500 foot zone was not worked.

The type of boundary marking used in Michigan consisted of yellow highway paint sprayed on trees, posts and rocks along the control zone boundary. In Minnesota strips of lath were nailed on posts or wood trees to mark the limits. The bad feature of the method used in Minnesota is the nailing of lath on trees. If trees considered as seed trees at the time of marking later are used as lumber the presence of the nail if it remained in the tree might be injurious to the small equipment when the log is cut and manufactured into lumber.

In Table 37 there is shown a statement of control zone boundary marking in Michigan and Minnesota. In Lower Michigan control zone marking around approximately 600 areas and 1,884 miles of boundary was charged to pre-eradication survey and is not included in this table.

It is interesting to note in Table 37 the comparison of costs between the marking of boundaries by the use of yellow highway paint

and by latex. In Michigan where yellow paint was used an average of 1.07 miles was marked per man-day, while in Minnesota this average was .85 miles. On the basis of costs the figure in Upper Michigan was \$5.34 per mile marked while in Minnesota this cost was \$3.88. On the basis of these figures it would appear that yellow paint is more economical to use as a boundary marker. As to the relative permanency of these two methods time will give the answer.

Field Studies

Infection Surveys

During the fall and winter of 1937 infection strip surveys were made in Upper Michigan and Minnesota to determine on a quantitative basis the amount of pine infection present on areas known to us infected. As far as possible the data as to the year of initial eradication and the Ribes pulled were taken on areas where Ribes eradication had been accomplished. Particularly in Minnesota it was difficult to determine the actual year Ribes eradication was performed on certain areas because of the lack of definite information and maps covering the Ribes eradication work. No attempt is made to segregate the data on areas protected and not protected in this report. This segregation and a further analysis of the data will be made later.

Crews making infection strip surveys usually consisted of two or three men. In the case of a three-man crew one man ran a compass, paced, and recorded data. The other two men examined trees on a strip 13.5 feet wide. These strips were either run as a compass line through the infected area or else followed a herringbone pattern. Data were taken on the number of trees examined, the number infected and the classification of cankers according to probable year or origin. In addition to this information the Minnesota crews also classified the trees examined into the three crown classes: dominant, intermediate and suppressed.

In Table 16 the results of this survey work in Upper Michigan and Minnesota are given. In Upper Michigan survey work was performed on 25 areas covering 65.4 acres of pine. In Minnesota the work was carried on in eight counties. A total of 1,340.6 acres was actually covered in the strip survey.

It will be noted that of the 8,061 trees in Upper Michigan examined 2,196 or 27.3% were infected. In Minnesota of the 102,977 trees examined 941 were found infected or .9% of them.

The significance of these general figures is only that they represent conditions at the present time in the areas of infection examined. They do not represent conditions typical either of the pine-growing area in Upper Michigan or Minnesota. It is hoped to make a further examination of these data to bring out the effect of Ribes eradication.

Studies in Germination of Black Currant Seed

Dr. Forrest Strong of the Botany Department of Michigan State College Experiment Station at Lansing made a study of germination of black currant seed furnished by members of the blister rust control organization. He tested the germinating ability of cultivated black currant seeds collected during the summers of 1935, 1936 and 1937. These tests were run during the fall and winter of 1935 to 1936, 1936 to 1937, 1937 to 1938. His preliminary report furnishes the following information:

The extraction of seed from the berries was quite difficult. Vermontization methods were tried but were not satisfactory. Most of the seeds were extracted from the pulp by mechanical methods.

The results of these efforts are as follows:

Seed from 1935 collection:	Fall and Winter 1935-36	Fall and Winter 1936-37
Germination on blotters	0	0
Germination on sand	0	0
Seed from 1936 collection:	Fall and Winter 1936-37	Fall and Winter 1937-38
Germination on blotters	11%	(Not tried so far this year)
Germination on sand	2%	
Seed from 1937 collection:	Fall and Winter 1937-38	
Germination on blotters	0	
Germination on sand	0	

It is noted that the only successful germination obtained so far was from seed from the 1936 collection tested in the fall and winter of 1936 to 1937. A total of 11% of these seeds germinated on blotters and 2% on sand.

Dr. Strong plans to continue this study along the following lines:

- Scarification of seed with acids and abrasives.
- Sowing of ripe berries in soil in summer.
- Efforts to obtain better depulping of seeds.
- Testing of other species of Ribes seed for germinability.
- Further blotter and sand tests using various modifications.

Field Studies Carried on Out of the Milwaukee Office

Dr. Boney of the Milwaukee office continued in 1937 his studies in the effectiveness of the control programs. His studies can be conveniently divided into three groups:

1. Effectiveness of control by means of pine infection study plots.
2. The study of Ribes regeneration following eradication.
3. The taking of phenologic data.

The results of his work along these lines are given in his own report which is appended.

Informational Activities

The success of a blister rust control program is dependent upon support on the part of the public, and particularly support from white pine owners. We are working on the control of a disease which for its success depends upon performing the work before blister rust has reached pine stands or before serious damage has occurred. Except in a relatively few places the damage caused by blister rust cannot be seen or demonstrated. In many respects blister rust control is similar to an insurance policy, in which the control work would correspond to the premiums paid in insuring a stand against damage from blister rust from youth to maturity. It is important that the general public understand the damage caused by blister rust and the effective and economical methods of its control.

During 1937 the usual methods of disseminating information on blister rust and its control were through the newspapers, state and county fairs, talks and pictures before schools and other groups, and the distribution of literature primarily in connection with cultivated black currants and other activities. Informational work done in each state is summarized briefly as follows:

Wisconsin

Through cooperation with the Federal W.P.A. Art Project six paintings were made approximately 2' x 2 $\frac{1}{2}$ '. These six pictures were divided into two sets - each set consisting of one picture showing a winter scene of white pine and a man making a pre-eradication survey; one picture showing the same scene in summer time with an eradication crew pulling Ribes in the foreground and the third picture showing a man examining trees dead and dying from blister rust. While these two sets were not identical the theme of each was the same. Our bureau paid for the canvas, paint and frame of these pictures and the painting was done free of cost to us by a member of the Federal W.P.A. Art Project. These pictures were used to good advantage at the Wisconsin State Fair held at Milwaukee.

Illinois

Mr. Bergeson used the local press in Winnebago and La Salle Counties to good advantage in giving publicity to local control work.

and significance of the several findings of blister rust on cultivated black currant bushes. In addition he distributed numerous bulletins on blister rust and its control to interested property owners, particularly those owners giving up cultivated black currant bushes and other cultivated Ribes in connection with nursery sanitation.

Indiana

No informational activity.

Iowa

Several thousand copies of pamphlets on blister rust control were distributed by the field workers to interested persons. In addition several daily and weekly newspapers carried articles on local control, black currant eradication and survey phases of the program.

Michigan

Informational activities in Michigan included the following:

1. Conducted tours to pine infection plots.
2. Fair exhibits.
3. Newspaper articles.
4. Talks to schools and clubs.
5. Personal contacts with pine and Ribes owners who were also given blister rust bulletins.
6. Window displays and posters shown in public places.

Minnesota

The following summary quoted from the 1937 Minnesota Annual Report gives the informational activities in Minnesota during 1937.

Articles

Daily and Weekly Press

Total number articles published - - - - -	21
Total number papers in which articles appeared - - -	14
Average length of articles - - - - -	11 inches

Demonstrations

<u>No.</u>	<u>Type</u>	<u>Attendance</u>
1	Damage Demonstration-Duluth	-----
1	State Fair	850,000
10	County and Community Fairs	22,797
1	Shows - at annual meetings	10,000
10	Window display, Duluth	-----
<u>25</u>		<u>882,797</u>

Lectures and Talks

<u>Where</u>	<u>Number</u>	<u>Attendance</u>
Schools	30	8,754
Others	7	306
Showing of motion picture film "From Cone to Product" by Division of Forestry	151	25,380
Total	194	31,925

*Bulletin Distribution

Miscellaneous Publication No. 27 - - -	500
Miscellaneous Publication No. 23 - - -	1,420
Blister Rust Control in Wisconsin - - -	1,695
Total - - - - -	3,615

Ohio

During 1937 24 articles were published in 19 newspapers in connection chiefly with the European Black Current eradication project. Schools on black current eradication were held in 60 communities to train 296 men for black current eradication. A one-hour talk on white pine blister rust control in Ohio was given to 500 freshmen and sophomore biology students at Kent State University. One white pine blister rust exhibit was shown at the Monroe County Fair. Diamond shaped posters "These Pines Have Been Protected from Blister Rust" were set up on areas where eradication work was performed. Approximately 4,000 copies of Miscellaneous Publication No. 23 and several hundred Miscellaneous Publication No. 27 were distributed.

Wisconsin

Information on blister rust control was disseminated through the following agencies:

1. Direct contact with pine owners.
2. Tours conducted to infection plots in unprotected pine stands.
3. State and county fair demonstrations - six fairs.
4. News articles in local papers.
5. Talks at schools, service clubs and at C.R.C. camp.
6. Radio talks.
7. Window displays.
8. Distribution of 8,300 state blotters and 11,500 state and federal bulletins.
9. Posters placed in public places.
10. Motion pictures taken in Wisconsin to show blister rust damage to unprotected pines, how white pine is mapped, and how Pines eradication work is conducted.

The Wisconsin Section of the Society of American Foresters in their annual field meeting mentioned white pine shuttlebelts and the New Hope Pine Infection Study Plot.

A control area poster was prepared in cooperation with the state entomologist under the provisions of General Order 3-E of the Wisconsin Department of Agriculture and Markets. In this red diamond shaped poster 3 1/2" wide and 18" long there was printed in black ink the control area number and the following information: "Caution! These White Pines are Protected from Blister Rust -- No currant or gooseberry bushes shall be grown within 500' of these pines". The purpose of these posters is two-fold. To emphasize that the pine area has been given initial protection and to prevent the planting of cultivated Ribes within the zone.

In cooperation with the state entomologist a bulletin was prepared for distribution among junior forest rangers, county agricultural agents and others. This bulletin was in the form of questions and answers.

Enforcement of Federal Quarantine No. 66

During 1937 a total of 38.1 man-months of W.F.A. relief labor costing \$2,584.10 was used during all of the months of the year except September and October at Chicago under the supervision of Mr. J. M. Corliss. These men were looking for shipments made in violation of the white pine blister rust quarantine primarily as observed at various points at the post office in Chicago. Their employment by months was as follows:

Month	Man-months	Costs
Jan. 1937	4.0	240.56
Feb.	4.0	240.56
Mar.	4.0	240.56
April	4.6	288.82
May	5.0	300.14
June	4.8	288.38
July	8.2	204.72
Aug.	0.3	15.36
Sept.	0.4	24.00
Dec.	1.0	66.00
Total	38.1	2,584.10

As noted above 187 violations of Federal quarantine and 517 violations of various state quarantines, making a total of 644 violations, were found by these men.

Quarantine No.	Name	No. of Violations Found
38	Black Stem Rust - - - - -	1
45	Gypsy and Broomtail Moths - - - - -	29
48	Japanese Beetle - - - - -	116
52	Pink Bollworm - - - - -	2
63	White Pine Blister Rust - - - - -	8
64	Mexican Fruit Worm - - - - -	12
	Various State Quarantine Regulations, Improper Certification, etc. - - - - -	517
Total Quarantine Violations Found - - - - -		634

Costs

Cost figures for the entire blister rust control program in the region are shown in Tables 38 to 41. The total spent and contributed toward the control program in the region during 1937 was \$688,672.44. This was only slightly more than half of what was spent in 1936. It will be noted in Table 41 that 84.6% was spent on wages and 15.4% on other than wages.

Charts 9 and 12 are based on Table 39. In Chart 9 is shown graphically the proportionate amount of funds spent in each state. In Chart 12 there is shown the percent of funds in each state contributed by each group of programs such as Federal-Regular, State and Cooperative, Federal-W.P.A., C.C.C., and all other programs. Exclusive of the Milwaukee office it will be noted that 5.3% was from Federal-Regular, 10.4% State and Cooperative, 53.0% from the Federal-W.P.A., 20.7% from the C.C.C. and 10.0% from all other programs. The chief program in "all other programs" was the State-W.P.A. program in Ohio.

Charts 10 and 13 are based on Table 40. Chart 10 shows the proportions of total blister rust control funds charged to different activities. These are divided into four major headings; viz., general supervision, local control, general control and field data. General supervision made up 23.0% of the total. This is high because it includes most of the cost of the Milwaukee office. In 1936 in which nearly double the amount of funds was spent the general supervision amounted to only 12.8% as contrasted with 23.0% in 1937. The general supervisory costs including the Milwaukee regional office, the state and district leaders and their offices were nearly the same in 1937 as in 1936.

Local control including pre-eradication survey and direct eradication amounted to 60.6%. Owing to the fact that a much smaller increase in force was employed during the field season in 1937 than in 1936, the proportionate amount charged in 1937 was smaller than in 1936.

CHART 9 SHOWING PROPORTIONS OF TOTAL B.R.C. FUNDS (\$582,574.41) EXPENDED IN MILWAUKEE OFFICE AND EACH STATE OF THE NORTH CENTRAL REGION, 1937.
BASED ON TABLE 37



MILWAUKEE OFFICE	4.7%
ILLINOIS	11.3%
INDIANA	8.8%
IOWA	5.3%
NEBRASKA	3.2%
MINNESOTA	17.3%
OHIO	14.9%
WISCONSIN	22.8%
MICHIGAN	27.4%
TOTAL	100.0%

1. The following information is taken from the report of the Committee on the
 1957-1958 Program, prepared by the Committee, and placed on file in
 1957

ANALYSIS OF FINANCIAL STATEMENT FROM 1957-1958

Category	1957	1958	1959	1960	1961	1962	1963	TOTAL 1957-1963	%
Operating Expenses	—	—	15.1	48	58	38	84	205	100
Capital & Development	2.8	1.4	13.0	17.2	47	6.2	65	151.6	—
Reserve Fund	21.6	23.4	24.2	27.8	20.5	34.0	28.1	232.6	100
Income	19.0	—	13	16.8	13.2	10.3	38.7	247	100
Unassigned Reserves	—	—	—	1.0	2.5	5.5	2.2	11.2	—
TOTALS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0	100.0

2. The following information is taken from the report of the Committee on the
 1957-1958 Program, prepared by the Committee, and placed on file in
 1957

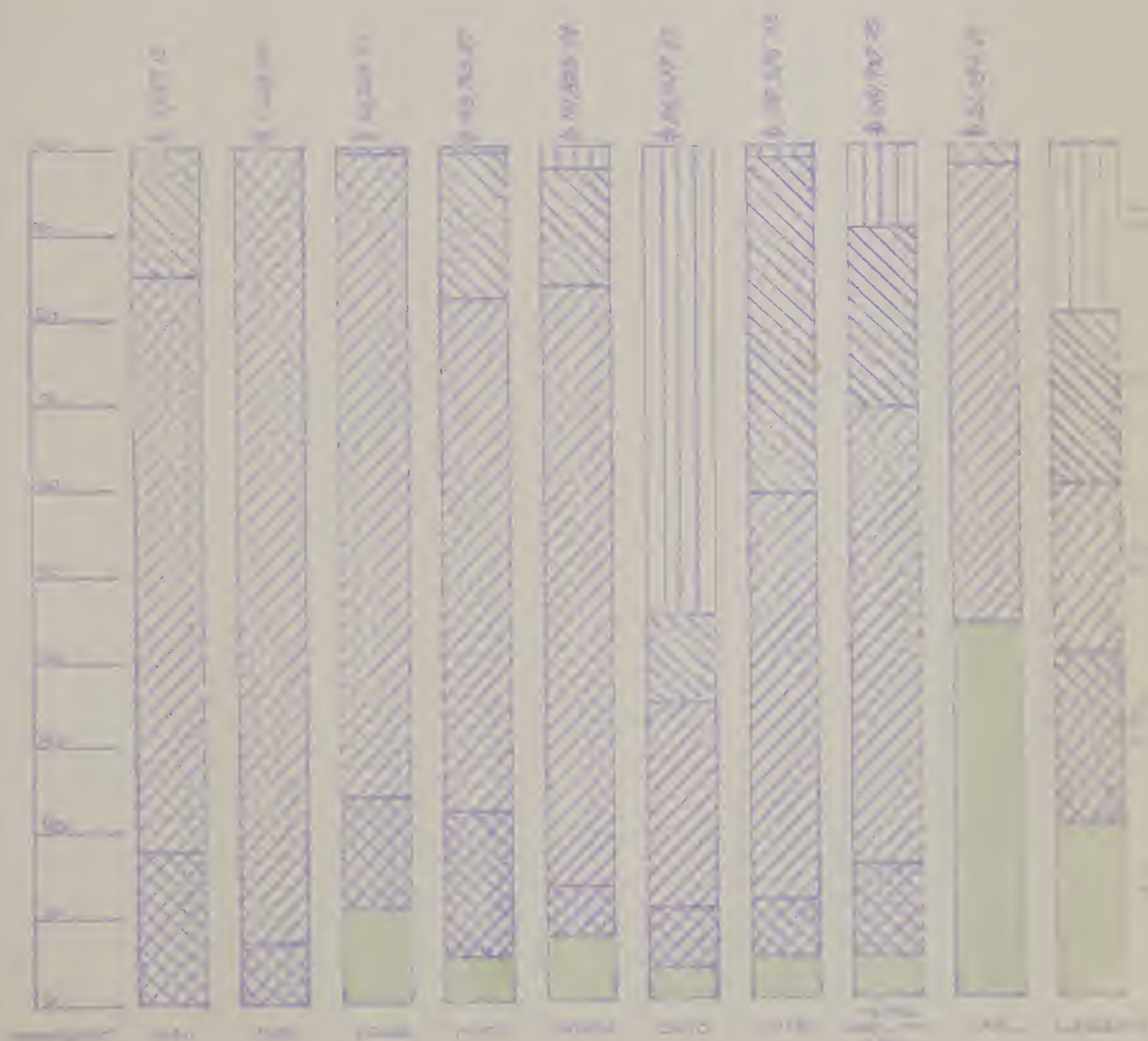
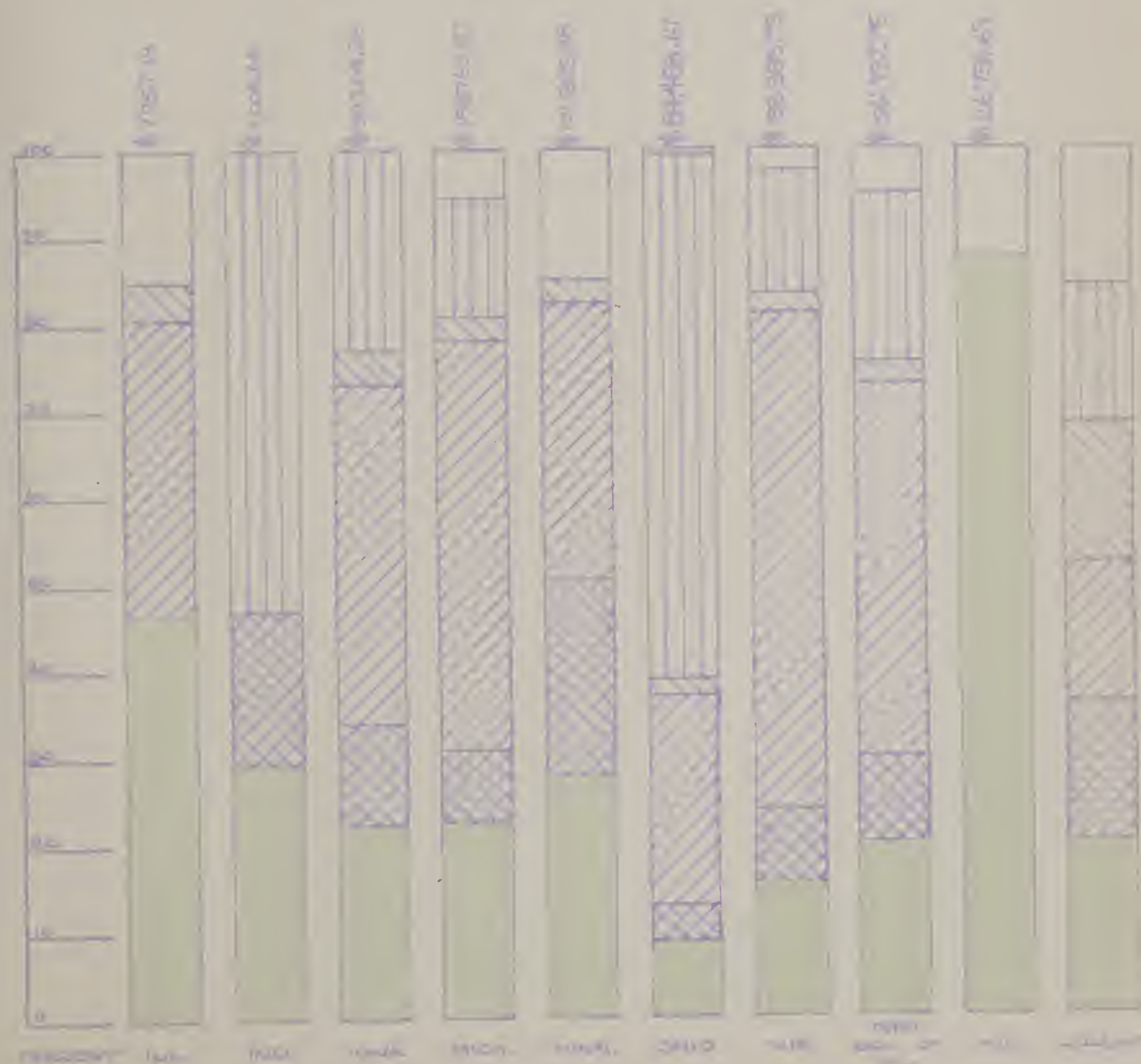


Table 2. Distribution of the total number of fish species among the different types of fish communities (January 1977) - (continued)

PERCENTAGE OF FISHES AMONG THE DIFFERENT TYPES

Category	LOW	MED	LOW-MED	HIGH	LOW-HIGH	CHD	SHR	TEMP. BARRIER	TOTAL
GENERAL SURVIVORS	44.2	27.4	26.3	82.7	26.1	2.9	15.6	19.8	87.6
SPERMATOPHYTES SURVIVORS	5.0	17.2	11.9	5.4	22.6	4.4	3.4	10.5	—
LOCAL CONTROL	53.6	—	39.4	46.7	31.7	29.8	54.6	42.6	—
WATERBURY SURVIVORS	4.9	—	3.0	2.5	9.0	6.0	2.7	2.4	—
CHD. MONOCULTURE	—	53.2	22.2	9.7	40.2	60.9	41.0	19.0	—
SHRUB CONTROL	13.8	—	—	5.8	14.7	0.6	8.5	5.5	19.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0



The general control program, including nursery sanitation, cultivated black currant elimination, canker removal and cultivated Ribes destroyed was charged with 20.7% of the total cost.

In Chart 13 there is shown the percent of funds spent in each state on each activity. It will be noted that in Ohio 90.3% of the total funds was spent on cultivated black currant elimination. This is chargeable to the large State-W.F.A. program for the removal of cultivated black currant bushes. With the exception of Indiana a substantial proportion of funds in each state was spent on local control. In Indiana there was only \$1,008.64 spent. This was utilized in January and February 1937 primarily on the location of cultivated black currant bushes for future eradicating purposes in the northern part of the state and in making pre-eradication surveys. Nursery sanitation was charged with 2.6% of the total funds. In Milwaukee alone 47.5% was spent on general supervision and 12.3% on field data.

[illegible][illegible]

a. = Antidote for b.

Table 4a. - Compensation Cases Involving N.P.A. Workers
Reported to the Milwaukee Office, 1937

State or Location	Injury	Poison Ivy or Oak	Cuts Sprains Thorns Bruises	Infection	Fracture	Total	Number per 1000 Man-Weeks
Illinois						0	0
Indiana						0	0
Iowa	1					1	2.94
Michigan	4	1	1	1		7	4.63
Minnesota					1	1	.94
Ohio						0	0
Wisconsin		1	1	1		3	2.57
Milwaukee			1			1	9.76
Total	6	2	2	2	1	13	8.98

Table 6. - Post-Experiment Surveys Performed in North Central Region, 1937,
by States and Programs. White Pine Planting Sites

Program	Acres White Pine Planting Site	Acres to Surv		Costs of Survey				Expenditures		
		Cost	Total	Man-days Required Reported in Table 5	Days Used Reported in Table 3	Salaries	Other	Total		
Illinois										
Traders										
Michigan										
Y.B.-000	10,924	413	21,986	23,401	455	-	1.0	3.00	3.21	7.21
Minnesota										
Albion Area										
I.B.-000	43									
S.B.A.	10,159	2,434	15,237	18,857	3,345	92.3	1,337.45	199.54	1,537.09	
Total	10,202	2,847	16,201	18,857	3,345	93.3	1,340.45	201.75	1,542.20	
Ohio										
Wagoner										
Y.B.-000	623	1,159	643	1,307	1,345	8.4	30.00	5.00	35.00	
S.B.A.-000	8,839	645	15,191	15,322	485	73.3	250.94	46.95	297.99	
Total	9,462	1,804	15,834	16,629	1,830	81.7	280.94	51.95	332.89	
Total Region										
Y.B.-000	11,549	1,792	21,675	23,708	1,815	8.4	30.00	5.00	35.00	
I.B.-000	43					1.0	3.00	3.21	7.21	
S.B.A.-000	8,880	443	15,181	15,359	485	73.3	250.94	46.95	297.99	
Y.B.A.	10,159	2,434	21,271	19,357	3,345	92.3	1,337.45	199.54	1,537.09	
Total	30,639	4,029	58,127	58,424	5,485	174.0	1,621.39	254.70	1,876.09	

Table 7. - Pre-Eradication Surveys Performed in North Central Region, 1937
Classified by Ownership and State

Ownership Class	Acres to Protect			Acres to Work			Man-Days Required
	W.P.	W.P.-P.S.	Total	Crew	Scout	Total	
Illinois							
County	26	100	125	405	230	835	187
Indiana							
Private	125	4	127	54	2,410	2,500	75
Iowa							
Private	759	-	759	1,905	75,981	75,984	2,107
Michigan							
Federal F.S.	6,379	1,000	7,379	3,842	20,234	24,076	2,228
Federal F.S.	-	10,964	10,964	413	22,988	23,401	468
State	4,380	-	4,380	5,245	10,011	15,256	7,128
County and Mun.	1,540	-	1,540	940	3,355	4,295	435
Private	19,657	-	19,651	37,412	56,508	93,720	34,101
Total Michigan	31,950	11,964	43,914	47,852	112,995	160,746	44,412
Minnesota							
Federal F.S.	6,472	-	6,472	6,413	8,475	14,888	6,414
Federal F.S.	-	7,040	7,040	1,986	9,764	11,750	2,017
Federal I.S.	141	-	141	308	348	656	522
Federal I.S.	-	98	98	-	226	226	-
State	2,787	-	2,787	8,745	1,545	10,290	6,615
State	-	3,064	3,064	348	6,243	6,591	328
Private	5,302	-	5,302	12,047	18,762	30,809	10,325
Total Minnesota	14,702	10,202	24,904	29,852	45,535	75,387	26,681
Ohio							
Private	2,922	611	3,533	21,579	33,756	55,315	15,477
Wisconsin							
Federal F.S.	377	-	377	453	744	1,197	1,082
Federal F.S.	-	885	885	1,159	648	1,807	1,546
Federal I.S.	9,881	-	9,881	10,386	12,531	22,917	11,797
State	830	-	830	1,571	2,186	3,757	1,688
State	-	3,382	3,382	108	6,095	6,203	198
County	8,963	-	8,963	21,457	1,872	23,129	6,177
County	-	4,656	4,656	337	8,421	8,758	361
Private	30,825	-	30,825	96,540	76,512	175,052	61,159
Private	-	200	200	-	668	668	5
Total Wisconsin	50,375	9,123	59,498	132,011	111,377	243,488	83,750
Total Region							
Federal F.S.	13,226	19,989	33,215	14,271	62,955	77,224	19,550
Federal I.S.	10,022	98	10,120	10,894	13,103	23,997	12,319
State	7,997	6,446	14,443	16,017	28,030	44,047	18,342
County and Mun.	10,528	4,756	15,284	23,159	10,678	36,817	7,154
Private	59,592	815	60,407	169,585	264,323	433,948	123,947
Grand Total	101,367	32,004	133,371	233,686	320,099	613,785	171,660

Table 9. - Acres White Pine Listed for Protection Classified into Approximate Ownership Classes. North Central Region, Dec. 31, 1937
(Ownership Status Subject to Continual Change)

Class	Federal F.S.	Federal I.S.	State	County Municipal	Private	Total	Percent
<u>Illinois</u>							
Native W.P.			200	100	103	403	19.5
Planted W.P.			42	130	625	797	50.5
W.P.P.S.			155	713		868	42.0
Total			397	943	728	2,068	100.0
<u>Indiana</u>							
Native W.P.							0.0
Planted W.P.			741	131	3,128	4,000	93.5
W.P.P.S.					287	287	6.7
Total			741	131	3,415	4,287	100.0
<u>Iowa</u>							
Native W.P.			250		374	624	12.2
Planted W.P.		10	50	200	4,116	4,376	85.6
W.P.P.S.			100			100	2.0
Total		10	300	200	4,490	5,100	100.0
<u>Michigan</u>							
Native W.P.	68,325		166,485	9,805	289,566	534,181	95.3
Planted W.P.	14,275		1,000		100	15,375	2.7
W.P.P.S.	10,964					10,964	2.0
Total	93,564		167,485	9,805	289,666	560,520	100.0
<u>Minnesota</u>							
Native W.P.	43,661	23,575	62,531	310	84,914	214,941	92.5
Planted W.P.	3,903	183	2,098	-	7	6,196	2.7
W.P.P.S.	7,657	98	3,152	-	173	11,080	4.8
Total	55,221	23,856	67,781	310	85,094	232,262	100.0
<u>Ohio</u>							
Native W.P.			1,800		1,300	3,100	56.5
Planted W.P.			200	300	4,565	5,065	59.7
W.P.P.S.	50			225	50	325	3.8
Total	50		2,000	525	4,915	7,500	100.0
<u>Wisconsin</u>							
Native W.P.	15,774	28,500	17,350	28,600	228,460	318,684	81.3
Planted W.P.	7,326	50	600	200	200	8,376	2.4
W.P.P.S.	14,267		3,000	4,700	200	22,167	5.3
Total	37,367	28,550	20,950	33,500	228,660	388,027	100.0
<u>Region</u>							
Native W.P.	127,760	62,076	247,466	36,915	804,717	1,071,234	71.3
Planted W.P.	24,508	243	4,702	341	32,742	44,146	2.8
W.P.P.S.	32,936	98	7,407	5,633	715	46,799	3.0
Total	185,204	62,417	259,575	42,889	838,174	1,168,299	100.0
<u>Percent</u>							
Native W.P.	11.9	4.9	23.2	3.6	56.4	100.0	
Planted W.P.	57.7	0.6	10.7	3.2	28.0	100.0	
W.P.P.S.	71.9	0.2	14.0	12.5	1.6	100.0	
Total	18.0	5.6	28.1	7.9	68.4	100.0	

Table 15. - Summary Second Gradication Performed on National Forests in North Central Region from Inception to Dec. 31, 1937

National Forest	Year Work Done	A. Protected		Acres Worked	Number Ropes Pulled	Rep-Days		Costs			
		White Pine	P. S.			Labor	Supervision	Labor	Supervision	Other	Total
Ottawa											
	1936	483	-	1,077	184,112	1,287	32	1,930.50	182.48	130.81	2,243.79
	1937	452	-	810	69,501	606	-	1,064.50	-	37.32	1,041.82
	Sub-total	935	-	1,887	253,613	1,893	32	2,995.00	182.48	168.13	3,245.61
Plewatha											
	1937	1,745	-	3,632	1,676	231	-	346.97	-	40.96	387.93
	Sub-total	1,745	-	3,632	1,676	231	-	346.97	-	40.96	387.93
Total											
	1936	483	-	1,077	184,112	1,287	32	1,930.50	182.48	130.81	2,243.79
	1937	2,197	-	4,642	91,397	837	-	1,351.47	-	76.28	1,429.05
	Grand total	2,680	-	5,719	265,509	2,124	32	3,281.97	182.48	207.09	3,671.54
Michigan											
Chippewa											
	1936	1,003	-	2,381	31,446	340	25	528.00	122.27	34.15	684.42
	1937	2,785	-	4,884	574,319	1,943	116	3,973.44	748.62	37.42	4,759.48
	Sub-total	3,788	-	7,265	605,765	2,283	141	4,501.44	870.89	71.57	5,343.90
	1937	111	-	219	4,128	85	4	169.50	22.24	27.20	219.00
	Sub-total	111	-	219	4,128	85	4	169.50	22.24	27.20	219.00
Superior											
	1936	1,008	-	2,381	31,446	340	25	528.00	122.27	34.15	684.42
	1937	2,592	-	5,103	478,547	2,028	120	4,142.94	770.84	64.68	4,978.46
	Sub-total	3,600	-	7,484	509,993	2,368	145	4,670.94	893.11	99.83	5,563.88
Minnesota											
Porcupine											
	1936	1,446	-	3,438	215,353	1,627	58	2,458.50	305.75	184.97	2,949.22
	1937	5,093	-	9,745	450,924	3,865	120	5,494.41	770.86	142.96	6,408.63
	Sub-total	6,539	-	13,183	666,277	5,492	178	7,952.91	1,076.61	227.93	9,257.45

Table 16: Analysis of Ribes Eradication, All Agencies, 1937 by Ribes Eradication Types

Ribes Eradication Type	Acres Marked	Number		Percent of Total				Average No Ribes Pulled Per Man-Day
		Ribes Pulled	Man-Days Labor and Supervision	Man-Days		Average per Acre Ribes Man-Days		
				Initial	Second			
Illinois (Initial and Second)								
Upland Crew	1,753	172,712	523	72.6	97.6	95.7	53	137.1
Scout	855	1,053	23	27.4	2.4	1.6	04	46.6
Total	2,608	173,765	546	100.0	100.0	72.3	50	135.7
Michigan (Initial and Second)								
Lowland Crew	7,513	2,459,935	10,572	6.5	57.0	515.4	1.36	232.9
Upland Crew	12,700	1,692,491	9,726	26.5	59.6	52.4	.30	174.5
Scout	50,479	129,646	2,202	66.7	3.1	1.6	.03	59.0
Total	126,692	4,272,072	22,500	100.0	100.0	381.2	1.19	160.5
Minnesota (Initial and Second)								
Lowland Crew	2,612	1,922,221	4,069	7.4	47.7	735.9	1.55	471.5
Upland Crew	10,796	2,057,787	6,526	30.7	50.9	190.6	.60	515.3
Scout	21,736	56,145	951	61.9	1.4	2.6	.04	59.0
Total	35,144	4,036,153	11,546	100.0	100.0	113.8	.33	162.0
Ohio (Initial and Second)								
Upland Crew	7,121	402,944	3,135	41.6	98.9	50.6	.86	85.0
Scout	10,014	4,576	173	53.4	1.1	.5	.02	26.0
Total	17,135	407,520	3,308	100.0	100.0	24.8	.87	35.2
Wisconsin (Initial)								
Upland Crew	4,039	2,429,154	3,080	5.0	39.5	597.0	1.93	800.6
Upland Crew	27,554	2,650,419	18,374	32.6	59.1	132.5	.67	180.7
Scout	12,003	101,263	1,437	54.4	1.8	2.7	.04	70.5
Total	43,596	5,180,836	22,891	100.0	100.0	99.3	1.40	231.1
Regional Total (Initial and Second)								
Lowland Crew	14,494	8,811,312	22,720	5.9	45.5	465.3	1.57	109.8
Upland Crew	79,504	7,977,853	41,884	32.3	52.9	100.8	.52	111.4
Scout	150,867	252,785	4,706	31.6	1.8	1.9	.03	61.2
Total	374,865	16,041,950	69,310	100.0	100.0	23.3	1.13	232.7

Notes: Data on Dms not included. Not available in some instances due to loss of data.

Table 17. - Summary of Local Control by Years, 1919 to 1937
Illinois

Year	Acres		Ribes Pulled	Man-Days	
	W. P. and Protected	W. P. P. S. Acres Worked		Labor and Supervision Actual-8 hr.	Total Cost
Initial Work					
1932	286	1,958	202,660	273	1,051.24
1933	Mop-up	-	7,600	38	91.20
1934	1,409	3,117	392,414	1,315	2,818.54
1935	Mop-up	-	30,390	169	208.20
1936	76	778	83,261	579	1,930.71
1937	65	580	35,540	121	409.34
Total Initial	1,835	6,433	751,865	2,495	6,509.23
Second Eradication					
1936	627	1,123	222,533	703	2,282.06
1937	490	1,808	138,225	825	2,043.20
Total Second	1,117	2,931	360,558	1,528	4,325.26
Total Eradication					
1932	286	1,958	202,660	273	1,051.24
1933	Mop-up	-	7,600	38	91.20
1934	1,409	3,117	392,414	1,315	2,818.54
1935	Mop-up	-	30,390	169	208.20
1936	703	1,901	305,594	1,287	4,219.77
1937	555	2,388	173,765	946	2,452.54
Total	2,952	9,364	1,112,423	4,028	10,341.49

Table 18. - Summary of Local Control by Years 1918 to 1937
Indiana

Year	Acres		Acres Worked	Ribes Pulled	Man-Days	
	W. P. and W. P. P. S. Protected				Labor and Supervision Actual	Total Cost
	Initial Work					
1933	393		3,993	18,418	341	770.50
1934	265		2,230	30,550	750	1,112.76
1936	481		5,971	35,059	540	2,153.51
Total Initial	1,139		12,194	84,027	1,631	4,036.77
Second Eradication						
1936	324		1,428	15,932	419	1,716.05
Total Eradication						
1933	393		3,993	18,418	341	770.50
1934	263		2,230	30,550	750	1,112.76
1936	835		7,799	53,521	959	3,028.90
Total	1,488		14,022	102,489	2,050	5,912.16

Table 19. - Summary of Local Control by Years 1918 to 1937
Iowa

Year	Acres		Acres Worked	Ribes Pulled	Man-days		
	W. P. and	W. P. P. S. Protected			Labor and	Supervision Actual	Total Cost
Initial Work							
1933	26		1,608	21,855	444	1,418.00	
1934	330		63,452	520,916	4,112	15,267.07	
1935	393		36,714	437,810	2,780	10,827.49	
1936	1,011		103,955	1,035,782	6,934	28,738.89	
1937	340		45,632	318,823	2,622	11,594.92	
Total Initial	2,000		261,351	2,594,786	16,892	66,845.37	
Second Eradication							
1936	34		5,340	18,341	140	502.52	
Total Eradication							
1933	26		1,608	21,855	444	1,418.00	
1934	330		63,432	520,916	4,112	15,237.07	
1935	293		36,714	437,310	2,780	10,827.49	
1936	1,045		109,195	1,111,129	7,082	29,240.88	
1937	340		45,632	318,823	2,622	11,594.92	
Total	2,034		266,579	2,610,033	17,040	70,318.36	

Table 20. - Summary of Local Control by Years 1923 to 1937
Michigan

Year	Acres		Ribes Pulled	Man-Days	
	W. P. and W. P. P. E. Protected	Acres Worked		Labor and Supervision. Actual	Total Cost
	Initial Work				
1928	107	1,500	83,051	268	739.32
1929	423	2,570	171,373	1,059	3,607.65
1930	1,795	6,578	373,456	2,731	5,161.94
1931	5,410	12,252	505,997	2,307	4,359.52
1932	5,364	16,071	1,164,305	3,682	6,952.86
1933	20,213	49,002	3,543,352	11,241	20,686.23
1934	72,922	194,831	12,581,032	50,484	99,821.10
1935	75,958	186,484	12,848,427	68,067	144,015.27
1936	74,566	242,932	18,220,159	55,665	196,659.59
1937	30,284	101,077	4,043,040	20,199	63,063.73
Total Initial	287,042	914,097	55,534,192	215,692	306,467.21
Second Eradication					
1932	203	420	8,004	18	49.25
1933	648	1,251	815	41	72.25
1934	2,597	6,402	140,051	1,209	1,891.93
1935	2,439	7,205	621,044	3,458	7,240.61
1936	8,498	24,140	1,362,186	6,645	18,436.97
1937	7,758	19,550	405,052	3,754	9,503.80
Total Second	22,143	59,047	2,536,954	15,105	37,926.51
Total Eradication					
1928	107	1,500	83,051	268	739.32
1929	423	2,570	171,373	1,059	3,607.65
1930	1,795	6,578	373,456	2,731	5,161.94
1931	5,410	12,252	505,997	2,307	4,359.52
1932	5,567	17,291	1,172,309	3,690	7,002.21
1933	20,861	50,253	3,543,967	11,282	20,659.03
1934	75,519	201,233	12,721,083	51,693	101,713.03
1935	78,397	193,769	13,469,471	71,525	151,255.88
1936	83,064	267,072	19,582,347	62,510	205,096.56
1937	38,042	120,627	4,448,092	23,953	74,367.53
Total	509,186	873,145	58,071,146	230,798	673,062.72

Table 21. - Summary of Local Control by Years 1917 to 1937
Minnesota

Year	Acres		Ribes Pulled	Man-Days		Total Cost
	N. P. and S. Protected	Acres Worked		Labor and Supervision 8 hour		
Initial Work						
1917	-	957	5,000	600		1,007.26
1918	400	1,200	90,000	700		3,000.00
1919	700	2,440	156,304	930		5,596.66
1920	225	744	124,759	156		5,160.03
1921	200	589	39,773	90		397.78
1922	50	75	904	8		25.70
1930	1,346	1,888	39,652	192		536.60
1931	243	253	18,611	49		304.60
1932	34	154	25,575	46		155.75
1933	7,755	17,437	1,540,378	8,958		12,441.35
1934	31,537	71,283	12,971,691	30,248		113,381.24
1935	28,025	53,336	7,862,461	22,874		59,147.30
1936	32,021	92,649	14,127,236	34,669		120,292.24
1937	13,029	33,867	3,407,355	5,336		26,707.00
Total Initial	113,615	276,372	60,409,392	105,852		345,768.39
Second Eradication						
1933	50	80	2,452	7		24.00
1934	30	135	5,180	21		51.43
1935	-	68	14,162	60		141.00
1936	9,635	13,439	691,154	4,454		11,919.34
1937	3,068	5,464	631,362	2,411		5,549.98
Total Second	12,753	19,186	1,344,347	6,953		17,895.53
Total Eradication						
1917	-	957	5,000	600		1,007.26
1918	400	1,200	90,000	700		3,000.00
1919	700	2,440	156,304	930		5,596.66
1920	225	744	124,759	156		5,160.03
1921	200	589	39,773	90		397.78
1922	50	75	904	8		25.70
1930	1,346	1,888	39,652	192		536.60
1931	243	253	18,611	49		304.60
1932	34	154	25,575	46		155.75
1933	7,805	17,497	1,542,867	8,965		12,465.35
1934	31,567	71,418	12,976,871	30,269		114,052.57
1935	28,025	53,404	7,876,623	22,754		59,288.30
1936	41,656	106,088	14,518,390	39,323		132,211.56
1937	16,097	39,331	4,038,717	10,747		32,256.96
Total	136,136	352,035	41,754,245	112,809		365,459.27

Ohio

Table 22. - Summary of Local Control by Years 1933 to 1937
Ohio

Year	Acres		Ribes Pulled	Man-Days	
	W. P. and W. P. P. S. Protected	Acres Worked		Labor and Supervision 8 hour	Total Cost
	Initial Work				
1933	568	2,637	71,806	2,326	7,181.68
1934	1,408	13,848	205,101	2,567	8,982.91
1935	914	7,923	281,677	2,764	7,195.66
1936	556	6,864	225,080	2,995	14,414.32
1937	997	15,500	333,640	4,209	17,486.60
Total Initial	4,443	46,572	1,117,304	14,861	51,261.17
Second Eradication					
1935	8	61	3,363	24	80.58
1936	278	1,133	53,805	694	2,406.84
1937	329	1,835	73,880	2,099	6,582.98
Total Second	615	3,029	131,048	2,817	9,070.40
Total Eradication					
1933	568	2,637	71,806	2,326	7,181.68
1934	1,408	13,848	205,101	2,567	8,982.91
1935	922	7,984	285,040	2,788	7,276.24
1936	834	7,997	278,885	3,689	16,821.75
1937	1,326	17,135	407,620	6,308	20,069.58
Total	5,058	49,701	1,245,452	17,678	50,332.17

Table 23. - Summary of Local Control by Years 1918 to 1937
Wisconsin

Year	Acres		Ribes Pulled	Man-Days	
	W. P. and W. P. P. S. Protected	Acres Worked		Labor and Supervision Actual	Total Cost
Initial Work					
1920	824	10,995	775,576	3,358	4,937.39
1921	411	3,887	457,093	2,715	2,773.92
1922	358	4,770	530,958	710	3,273.81
1923	251	3,347	204,043	1,023	2,068.23
1926	"	208	5,240	63	"
1927	"	250	42,226	77	488.00
1928	"	335	77,485	102	891.37
1929	"	180	18,744	55	776.60
1930	99	491	164,485	150	1,105.18
1931	259	3,076	313,839	940	2,195.87
1932	3,654	19,655	1,429,065	2,825	6,490.72
1933	23,015	58,580	4,022,362	15,917	45,690.46
1934	38,082	126,700	12,161,834	50,939	160,552.25
1935	46,292	173,421	16,588,164	79,041	192,289.47
1936	44,544	175,978	20,583,990	72,556	232,055.29
1937	28,467	84,951	6,420,137	29,020	89,834.45
Total Initial	138,258	571,324	55,596,241	259,491	745,428.71
Second Eradication					
1934	5,359	17,135	1,065,671	4,395	14,977.73
1935	4,419	16,403	532,434	2,377	7,318.56
1936	2,742	8,498	211,614	2,524	6,142.79
1937	86	455	1,180	46	94.72
Total Second	12,606	42,491	1,810,899	9,342	28,533.80
Third Eradication					
1936	90	50	1,260	51	35.05
Total Eradication					
1920	824	10,995	775,576	3,358	4,937.39
1921	411	3,887	457,093	2,715	2,773.92
1922	358	4,770	530,958	710	3,273.81
1923	251	3,347	204,043	1,023	2,068.23
1926	"	208	5,240	63	"
1927	"	250	42,226	77	488.00
1928	"	335	77,485	102	891.37
1929	"	180	18,744	55	776.60
1930	99	491	164,485	150	1,105.18
1931	259	3,076	313,839	940	2,195.87
1932	3,654	19,655	1,429,065	2,825	6,490.72
1933	23,015	58,580	4,022,362	15,917	45,690.46
1934	43,441	145,835	13,227,505	55,334	175,530.01
1935	50,711	189,824	17,120,598	81,918	199,608.03
1936	47,376	184,566	20,596,872	75,111	238,284.13
1937	28,553	85,406	6,421,317	29,066	89,929.17
Total	198,952	714,405	65,407,408	369,868	774,047.52

Table 95. - Areas of White Pine and State Pine Planting Sites
Listed for Protection, and Areas Initially
Projected 1917 to 1937, by Appropriation
Growth Class, and
North Central Region

State Item	Appropriate Growth Class					Total
	Federal F.S.	Federal Init.	State	County	Municipal Private	
Ill. Total	-	-	367	143	98	6,048
Prot. Init.	-	-	367	333	385	1,045
Unprotected	-	-	15	10	-	10
% Init. Prot.	-	-	99.7%	99.3%	99.6%	99.7%
Ind. Total	-	-	741	152	1,415	4,034
Prot. Init.	-	-	312	50	732	1,150
Unprotected	-	-	429	102	683	1,232
% Init. Prot.	-	-	42.1%	33.6%	51.7%	42.1%
Iowa Total	-	10	600	900	4,490	5,100
Prot. Init.	-	10	148	-	1,834	2,000
Unprotected	-	-	452	900	2,656	3,100
% Init. Prot.	-	100.0%	40.0%	0.0%	40.7%	72.1%
Mich. Total	23,654	-	187,467	9,855	281,165	500,081
Prot. Init.	28,760	-	22,859	9,412	166,999	227,030
Unprotected	14,894	-	164,608	8,443	114,166	273,051
% Init. Prot.	50.7%	-	55.4%	80.0%	54.1%	50.7%
Minn. Total	55,296	23,858	57,531	310	68,009	235,104
Prot. Init.	19,165	15,844	29,100	126	61,178	135,413
Unprotected	36,131	8,014	28,431	184	6,831	99,691
% Init. Prot.	34.7%	66.4%	43.0%	41.0%	40.1%	49.7%
Ohio Total	50	-	2,000	100	2,910	4,460
Prot. Init.	50	-	1,575	300	2,583	4,443
Unprotected	-	-	425	700	3327	4,017
% Init. Prot.	100.0%	-	77.7%	30.0%	88.8%	74.3%
Wis. Total	37,207	23,350	20,950	35,500	242,860	349,867
Prot. Init.	17,779	24,055	16,427	23,604	104,490	185,355
Unprotected	19,428	-	4,523	11,896	138,370	164,512
% Init. Prot.	47.8%	64.3%	78.4%	66.5%	43.7%	53.3%
Region Total	126,207	52,415	289,604	48,814	618,173	1,161,613
Prot. Init.	58,965	30,910	140,770	33,236	312,471	576,292
Unprotected	67,242	21,505	148,834	15,578	305,702	585,321
% Init. Prot.	46.7%	59.1%	48.6%	68.1%	50.6%	49.6%

Table 26. - Acreage of Control Area Initially Cleared of Ribes, Covered by Pre-Eradication Surveys and neither Worked nor Surveyed, North Central Region, 1918 to 1937 Inc.

State	Estimated Total Acre- age in Con- trol area	Acres cleared of Ribes Initially		Acres Covered by Pre- Erad. Surveys but not yet cleared of Ribes		Acres neither cleared of Ribes nor Surveyed	
		Number	Percent	Number	Percent	Number	Percent
Illinois	8,910	6,435	72.2%	1,668	18.7%	813	9.1%
Indiana	41,000	12,194	29.7%	12,087	29.6%	16,719	40.7%
Iowa	850,200	251,341	29.6%	241,472	28.4%	357,387	42.0%
Michigan	1,650,456	614,097	49.3%	611,798	37.1%	424,561	25.6%
Minnesota	559,275	376,872	67.4%	238,224	42.6%	74,879	13.4%
Ohio	121,446	46,572	38.4%	57,014	47.0%	17,860	14.7%
Wisconsin	1,241,532	671,824	54.1%	446,811	36.0%	123,197	9.9%
Region	4,803,600	2,079,558	43.3%	1,607,072	33.5%	1,116,970	23.2%

Table 28. - Percent of Acres Worked and Checked According to Ribes Per Acre
Classes Remaining after Eradication, by Eradication Type.
North Central Region, 1937.

Eradication Type	Acres Worked and Checked	Ribes F.L.S. per acre classes after eradication					Total
		0 F.L.S. 0.1-5.0 F.L.S.	5.1-15.0 F.L.S.	15.1-25.0 F.L.S.	25.1-50.0 F.L.S.	Over 50 F.L.S.	
Lowland Crew	10,255	5.1%	13.5%	40.0%	32.9%	6.4%	100.0%
Upland Crew	65,794	12.1	34.5	37.3	9.3	5.5	100.0
Scout	63,328	59.6	28.9	9.9	1.6	0	100.0
Total	139,387	25.5	20.1	25.0	21.0	3.1	100.0

Note that the highest percent of Ribes-free acres was found after scout work. Although the highest percent of acres worked by L.C., and U.C., fell in the 5.1 to 15.0 F.L.S. class, the fact remains that only 59.4% of lowland crew work and 81.1% of upland crew work showed 15.0 F.L.S. or less after eradication. 96.2% of all acres showed less than 25.0 F.L.S. after eradication.

Table 29. - Percent of Acres Covered in Each F.L.S. Class by Each of the Three
Eradication Types. North Central Region, 1937.

Eradication Type	Acres Worked and Checked	Ribes F.L.S. per acre classes after eradication					Total
		0 F.L.S. 0.1-5.0 F.L.S.	5.1-15.0 F.L.S.	15.1-25.0 F.L.S.	25.1-50.0 F.L.S.	Over 50 F.L.S.	
Lowland Crew	10,255	1.3%	3.2%	11.8%	32.0%	15.4%	74.8%
Upland Crew	65,794	17.8	31.4	70.2	28.4	24.6	97.2
Scout	63,328	57.6	43.3	18.0	9.5	0	118.4
Total	139,387	25.0	20.0	20.0	100.0	100.0	100.0

Table 31. - Cultivated Black Current Eradication, North Central Region, 1937

Initial Eradication

State	Number Counties Where Work Was Done	Total Number Inspections	Found		Destroyed		Number Man-days Used	Average Number Pushes per Location	Average No. R. nigra Locations per 1000 Inspections	Number R. nigra Locations per 1000 Inspections
			Locations	Bushes	Locations	Bushes	Actual-8 hr. Location			
Illinois	11	3,000a	264	2,138	53	412	- d	8.2	86.0	-
Indiana	2	62,000	274	1,976	0	0	128	7.2	4.4	2.1
Iowa	38b	63,409	298	1,087	248	1,152	1,321	3.6	4.7	0.7
Michigan	19	29,660	190	9,232	173	6,784	5,182	48.7	6.4	0.1
Minnesota	-	-	5c	26c	5c	26c	-	5.2	-	-
Ohio	46	685,283	1,168	6,865	1,557	10,121	9,326	5.9	1.7	0.1
Wisconsin	7	24,824	513	2,945	835	4,347	1,295	5.7	20.7	0.4
Region Total	123	832,195	3,913	24,412	2,973	22,642	17,862	9.0	6.1	0.8

C.B.C. Recheck

Michigan	53	63,027	385	2,362	370	2,320	3,884	5.1	4.6	0.1
Wisconsin	13	64,724	207	804	207	804	2,036	5.9	4.1	0.1
Region Total	66	127,751	592	3,166	577	3,124	5,920	5.5	4.3	0.1
Grand Total	179	1,017,017	4,304	27,478	3,490	25,966	25,802			

- a - Estimated
b - 13 Counties covered by scouting - not a systematic CBC Survey
c - These bushes destroyed in connection with other work
d - Charged to scouting or nursery sanitation

Table 32. - Cultivated Black Currant Recheck, North Central Region, 1937

Year	Found on Recheck, 1937												% Total 7000		
	Original Survey		Missed				Seedlings		Sprouts		Plant. Since Orig. Work			Total on Recheck	
	Completed	Locations	Destroyed Bushes	Originally Locations	Originally Bushes	Loc. Bushes	Loc. Bushes	Loc. Bushes	Loc. Bushes	Loc. Bushes	Loc. Bushes	Loc. Bushes		Loc. Bushes	
1932		82	647	2	22	-	6	23	1	1	9	46	97.0	95.7	
1934		3,033	22,233	284	1,456	-	49	114	10	39	323	1,609	92.0	97.8	
1935		192	2,416	23	119	-	6	23	1	16	30	159	89.6	95.3	
State total		3,314	25,296	389	1,597	-	61	160	12	55	383	1,814	95.0	99.3	
<u>Michigan</u>															
1935		690	4,444	84	383	-	2	5	1	2	87	390	89.2	93.1	
1936		1,073	5,325	82	294	-	23	72	6	47	113	403	93.9	98.9	
1937		1,350	8,944	2	2	1	2	7	2	2	7	11	90.8	92.9	
State total		3,113	18,713	168	659	1	27	84	11	51	207	604	94.9	97.9	
<u>Wisconsin</u>															
1935		690	4,444	84	383	-	2	5	1	2	87	390	89.2	93.1	
1936		1,073	5,325	82	294	-	23	72	6	47	113	403	93.9	98.9	
1937		1,350	8,944	2	2	1	2	7	2	2	7	11	90.8	92.9	
State total		3,113	18,713	168	659	1	27	84	11	51	207	604	94.9	97.9	

a - One location of approximately 2000 seedlings of R. nigrum or R. Hudsonianum.
 Interesting to note the absence of positively known R. nigrum seedlings on recheck. Of the 362 locations found on recheck in Michigan in 1937, 79.6% was missed originally; 0% was seedlings; 16.9% was sprouts; and 3.3% were replants. These percentages in Wisconsin were, respectively, 91.2%, 0.5%, 13.0% and 5.3%. There is a noticeable similarity in results of recheck work in Michigan and Wisconsin analyzed on this basis.

Table 33. - Cultivated Black Currant Bushes Destroyed in North Central Region, 1929-1937 Inc.

State	1929-1936		1937		1929-1937		Estimated \$ Completed Initial For
	Locations	Bushes	Locations	Bushes	Locations	Bushes	
Illinois	-	-	55	412	55	412	-
Iowa	332	1,752	248	1,158	570	2,904	85
Michigan	10,831	109,333	543	9,104	11,374	118,437	100
Minnesota	2,991	22,039	5	26	2,996	22,065	100
Ohio	5,177	58,078	1,557	10,121	7,734	68,199	98
Wisconsin	4,809	29,497	1,042	5,151	5,851	34,648	100
Region Total	25,130	220,599	3,450	25,962	28,750	245,904	95

Table 34. - Summary of Blister Rust Canker Pruning, North Central Region, 1937

State	Number Areas Treated	Number Trees		Number Trees		Number Cankers		Days Used	Cost
		Treated	Examined	Treated	Removed	Removed	Used		
Michigan	44	33,800		4,312	4	8,566	190		631.80
Minnesota	4	1,552		28	82	28	9		26.00
Region Total	48	35,352		4,340	86	8,594	199		657.80

Table 35. - Summary of Blister Rust Canker Pruning, North Central Region, 1917 - 1937, Inc.

State	Number Trees		Number Trees		Number Cankers		Days Used	Cost
	Examined	Treated	Treated	Removed	Removed	Used		
Michigan	98,800	7,577	4	16,725	385		1,459.25	
Minnesota	157,434	6,109	203	15,967	851		2,373.60	
Region Total	256,234	13,686	207	32,692	1,236		3,832.85	

Table 36. - Infection Survey, North Central Region, 1937

State	Agency	Acres	Number	Number	Number	Man-	Costs		
		in	Trces	Trces	Cankers	Days	Wages	Other	Total
Upper									
Michigan	W.P.A.	55.4	8,051	2,198	4,760	172	714.40	55.10	769.50
Minnesota	W.P.A.	1,042.6	102,677	941	1,342	919	2,947.73	312.53	3,260.26
Total		1,098.0	110,728	3,139	6,102	1,091	3,662.13	367.63	4,029.76

Item	Michigan	Minnesota	Total
Percent trees infected	27.5%	0.9%	2.5%
Cankers per infected trees	2.17	1.43	1.95

Infection conditions as shown by these data are not to be considered as typical of Upper Michigan or Minnesota as a whole. They represent conditions as found in generally infected areas in the two states. On most of these areas Ribes eradication had been performed in the years past, but no analysis on the basis of time of eradication has been completed. It is planned to make such an analysis later.

Table 37. - Control Zone Boundary Marking, North Central Region, 1937

State	Agency	Number	Number	Miles of Man-	Days	Costs			Per Mile
		Areas	Acres	Boundary		Wages	Other	Total	
Upper									
Michigan	W.P.A.	126	48,414	548	510	1,632.50	34.17	1,776.67	3.24
Minnesota	W.P.A.	140	32,455	349	410	1,290.65	63.76	1,354.41	3.85
Total		266	80,869	897	920	2,923.15	97.93	3,021.08	3.60

a - Approximately 500 areas and 1,864 miles marked in Lower Michigan and charged to proeradication survey not included in this table.

Yellow highway paint sprayed or painted on trees, posts and rocks along the control zone boundary was the method used in Michigan. In Minnesota strips of lath were nailed on posts or wood trees to mark limits. In Michigan an average of 1.07 miles was marked per man-day, while in Minnesota this average was 0.85 miles. On basis of acres in control zone enclosed the cost per acre in Michigan and Minnesota was \$0.036 and \$0.041, respectively.

Table 38. - Expenditure for All Blister Rust Control Projects
In Milwaukee, 1937

Expenditure		A	B	
Agency	Classification	Supervision	Field Data	Totals
Regular	Salaries	8,692.32	1,516.89	10,408.94
	Expenses	969.27	39.38	1,026.65
	Sub-total	9,661.59	1,556.27	11,477.27
001089	Salaries	-	-	-
W.P.A.	Expenses	20.24	1.37	21.61
	Sub-total	20.24	1.37	21.61
501088	Salaries	4,670.62	649.96	5,320.60
W.P.A.	Expenses	2,126.91	48.01	2,174.92
	Sub-total	6,797.53	697.97	7,495.50
501087	Salaries	2,834.72	433.82	3,268.54
W.P.A.	Expenses	874.83	634.71	1,509.54
	Sub-total	3,709.55	1,068.53	4,778.08
501009	Salaries	2,180.00	-	2,180.00
W.P.A.	Expenses	-	-	-
	Sub-total	2,180.00	-	2,180.00
Technician	Salaries	566.64	-	566.64
E.C.W.	Expenses	135.75	-	135.75
	Sub-total	702.39	-	702.39
Total	Salaries	19,344.80	2,099.96	21,644.76
	Expenses	4,447.00	743.47	5,650.47
Grand Total		23,791.80	2,843.43	26,635.23

Table 41. - Total Region Expenditures of Wages and Other than Wages.
North Central Region, 1957

State	Wages	Other than Wages	Total
Illinois	9,524.59	732.64	7,257.13
Indiana	852.30	75.84	1,006.84
Iowa	23,205.85	7,002.38	30,208.23
Michigan	128,882.94	29,880.93	158,763.87
Minnesota	90,251.98	11,573.50	101,825.48
Ohio	75,388.56	9,100.11	84,488.67
Wisconsin	134,280.19	24,105.54	158,385.73
(Milwaukee)	21,844.22	4,890.47	25,734.69
Total	441,311.15	87,361.31	568,673.46
% Of Total	84.5	15.4	100.0

Table 12. - Range of monthly sales and costs - California Only
North Central Region, 1957

State Sales Category	Class	Occupational Title	Maximum Sales Per Month	Range of Monthly Sales		Range of Monthly Costs	
				Low	High	Low	High
County	Unskilled Labor	Common Labor	150	0.11-0.40	40.00-80.00	50.00	40.00
	Unskilled Labor	Inspector's helper	100	0.15-0.50	45.00-85.00	55.00	45.00
	Unskilled Labor	Tr. Inspector	120	0.15-0.65	55.00-85.00	55.00	45.00
	All					50.00	40.00
State	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	All					50.00	40.00
County	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	All					50.00	40.00
State	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	All					50.00	40.00
County	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	All					50.00	40.00
State	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	All					50.00	40.00
County	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10-0.50	40.00-80.00	50.00	40.00
	All					50.00	40.00
State	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	Unskilled Labor	Tr. Plant Operator	150	0.10	50.00	50.00	40.00
	All					50.00	40.00

Continuation of Schedule B

Part I - Real Estate					
1. Description of property	2. Location	3. Date acquired	4. Date sold	5. Selling price	6. Cost basis
1. 123 Main St, Apt 101, New York, NY	New York, NY	1/15/80	12/31/85	\$100,000	\$80,000
2. 456 Elm St, Apt 202, New York, NY	New York, NY	3/10/81	6/15/86	\$120,000	\$95,000
3. 789 Oak St, Apt 303, New York, NY	New York, NY	5/20/82	9/10/87	\$150,000	\$110,000
4. 101 Pine St, Apt 404, New York, NY	New York, NY	7/1/83	11/1/88	\$180,000	\$130,000
5. 202 Cedar St, Apt 505, New York, NY	New York, NY	9/15/84	1/15/89	\$200,000	\$150,000
6. 303 Birch St, Apt 606, New York, NY	New York, NY	11/1/85	3/1/90	\$220,000	\$160,000
7. 404 Spruce St, Apt 707, New York, NY	New York, NY	1/1/86	5/1/91	\$250,000	\$180,000
8. 505 Willow St, Apt 808, New York, NY	New York, NY	3/1/87	7/1/92	\$280,000	\$200,000
9. 606 Ash St, Apt 909, New York, NY	New York, NY	5/1/88	9/1/93	\$300,000	\$220,000
10. 707 Hickory St, Apt 1010, New York, NY	New York, NY	7/1/89	11/1/94	\$350,000	\$250,000
11. 808 Maple St, Apt 1101, New York, NY	New York, NY	9/1/90	1/1/95	\$400,000	\$280,000
12. 909 Poplar St, Apt 1202, New York, NY	New York, NY	11/1/91	3/1/96	\$450,000	\$300,000
13. 1010 Sycamore St, Apt 1303, New York, NY	New York, NY	1/1/92	5/1/97	\$500,000	\$350,000
14. 1101 Walnut St, Apt 1404, New York, NY	New York, NY	3/1/93	7/1/98	\$550,000	\$380,000
15. 1202 Chestnut St, Apt 1505, New York, NY	New York, NY	5/1/94	9/1/99	\$600,000	\$400,000
16. 1303 Elm St, Apt 1606, New York, NY	New York, NY	7/1/95	11/1/00	\$650,000	\$450,000
17. 1404 Oak St, Apt 1707, New York, NY	New York, NY	9/1/96	1/1/01	\$700,000	\$480,000
18. 1505 Pine St, Apt 1808, New York, NY	New York, NY	11/1/97	3/1/02	\$750,000	\$500,000
19. 1606 Cedar St, Apt 1909, New York, NY	New York, NY	1/1/98	5/1/03	\$800,000	\$550,000
20. 1707 Birch St, Apt 2010, New York, NY	New York, NY	3/1/99	7/1/04	\$850,000	\$580,000
21. 1808 Spruce St, Apt 2101, New York, NY	New York, NY	5/1/00	9/1/05	\$900,000	\$600,000
22. 1909 Willow St, Apt 2202, New York, NY	New York, NY	7/1/01	11/1/06	\$950,000	\$650,000
23. 2010 Ash St, Apt 2303, New York, NY	New York, NY	9/1/02	1/1/07	\$1,000,000	\$700,000
24. 2101 Hickory St, Apt 2404, New York, NY	New York, NY	11/1/03	3/1/08	\$1,050,000	\$750,000
25. 2202 Maple St, Apt 2505, New York, NY	New York, NY	1/1/04	5/1/09	\$1,100,000	\$800,000
26. 2303 Poplar St, Apt 2606, New York, NY	New York, NY	3/1/05	7/1/10	\$1,150,000	\$850,000
27. 2404 Sycamore St, Apt 2707, New York, NY	New York, NY	5/1/06	9/1/11	\$1,200,000	\$900,000
28. 2505 Walnut St, Apt 2808, New York, NY	New York, NY	7/1/07	11/1/12	\$1,250,000	\$950,000
29. 2606 Chestnut St, Apt 2909, New York, NY	New York, NY	9/1/08	1/1/13	\$1,300,000	\$1,000,000
30. 2707 Elm St, Apt 3010, New York, NY	New York, NY	11/1/09	3/1/14	\$1,350,000	\$1,050,000
31. 2808 Oak St, Apt 3101, New York, NY	New York, NY	1/1/10	5/1/15	\$1,400,000	\$1,100,000
32. 2909 Pine St, Apt 3202, New York, NY	New York, NY	3/1/11	7/1/16	\$1,450,000	\$1,150,000
33. 3010 Cedar St, Apt 3303, New York, NY	New York, NY	5/1/12	9/1/17	\$1,500,000	\$1,200,000
34. 3101 Birch St, Apt 3404, New York, NY	New York, NY	7/1/13	11/1/18	\$1,550,000	\$1,250,000
35. 3202 Spruce St, Apt 3505, New York, NY	New York, NY	9/1/14	1/1/19	\$1,600,000	\$1,300,000
36. 3303 Willow St, Apt 3606, New York, NY	New York, NY	11/1/15	3/1/20	\$1,650,000	\$1,350,000
37. 3404 Ash St, Apt 3707, New York, NY	New York, NY	1/1/16	5/1/21	\$1,700,000	\$1,400,000
38. 3505 Hickory St, Apt 3808, New York, NY	New York, NY	3/1/17	7/1/22	\$1,750,000	\$1,450,000
39. 3606 Maple St, Apt 3909, New York, NY	New York, NY	5/1/18	9/1/23	\$1,800,000	\$1,500,000
40. 3707 Poplar St, Apt 4010, New York, NY	New York, NY	7/1/19	11/1/24	\$1,850,000	\$1,550,000
41. 3808 Sycamore St, Apt 4101, New York, NY	New York, NY	9/1/20	1/1/25	\$1,900,000	\$1,600,000
42. 3909 Walnut St, Apt 4202, New York, NY	New York, NY	11/1/21	3/1/26	\$1,950,000	\$1,650,000
43. 4010 Chestnut St, Apt 4303, New York, NY	New York, NY	1/1/22	5/1/27	\$2,000,000	\$1,700,000
44. 4101 Elm St, Apt 4404, New York, NY	New York, NY	3/1/23	7/1/28	\$2,050,000	\$1,750,000
45. 4202 Oak St, Apt 4505, New York, NY	New York, NY	5/1/24	9/1/29	\$2,100,000	\$1,800,000
46. 4303 Pine St, Apt 4606, New York, NY	New York, NY	7/1/25	11/1/30	\$2,150,000	\$1,850,000
47. 4404 Cedar St, Apt 4707, New York, NY	New York, NY	9/1/26	1/1/31	\$2,200,000	\$1,900,000
48. 4505 Birch St, Apt 4808, New York, NY	New York, NY	11/1/27	3/1/32	\$2,250,000	\$1,950,000
49. 4606 Spruce St, Apt 4909, New York, NY	New York, NY	1/1/28	5/1/33	\$2,300,000	\$2,000,000
50. 4707 Willow St, Apt 5010, New York, NY	New York, NY	3/1/29	7/1/34	\$2,350,000	\$2,050,000
51. 4808 Ash St, Apt 5101, New York, NY	New York, NY	5/1/30	9/1/35	\$2,400,000	\$2,100,000
52. 4909 Hickory St, Apt 5202, New York, NY	New York, NY	7/1/31	11/1/36	\$2,450,000	\$2,150,000
53. 5010 Maple St, Apt 5303, New York, NY	New York, NY	9/1/32	1/1/37	\$2,500,000	\$2,200,000
54. 5101 Poplar St, Apt 5404, New York, NY	New York, NY	11/1/33	3/1/38	\$2,550,000	\$2,250,000
55. 5202 Sycamore St, Apt 5505, New York, NY	New York, NY	1/1/34	5/1/39	\$2,600,000	\$2,300,000
56. 5303 Walnut St, Apt 5606, New York, NY	New York, NY	3/1/35	7/1/40	\$2,650,000	\$2,350,000
57. 5404 Chestnut St, Apt 5707, New York, NY	New York, NY	5/1/36	9/1/41	\$2,700,000	\$2,400,000
58. 5505 Elm St, Apt 5808, New York, NY	New York, NY	7/1/37	11/1/42	\$2,750,000	\$2,450,000
59. 5606 Oak St, Apt 5909, New York, NY	New York, NY	9/1/38	1/1/43	\$2,800,000	\$2,500,000
60. 5707 Pine St, Apt 6010, New York, NY	New York, NY	11/1/39	3/1/44	\$2,850,000	\$2,550,000
61. 5808 Cedar St, Apt 6101, New York, NY	New York, NY	1/1/40	5/1/45	\$2,900,000	\$2,600,000
62. 5909 Birch St, Apt 6202, New York, NY	New York, NY	3/1/41	7/1/46	\$2,950,000	\$2,650,000
63. 6010 Spruce St, Apt 6303, New York, NY	New York, NY	5/1/42	9/1/47	\$3,000,000	\$2,700,000
64. 6101 Willow St, Apt 6404, New York, NY	New York, NY	7/1/43	11/1/48	\$3,050,000	\$2,750,000
65. 6202 Ash St, Apt 6505, New York, NY	New York, NY	9/1/44	1/1/49	\$3,100,000	\$2,800,000
66. 6303 Hickory St, Apt 6606, New York, NY	New York, NY	11/1/45	3/1/50	\$3,150,000	\$2,850,000
67. 6404 Maple St, Apt 6707, New York, NY	New York, NY	1/1/46	5/1/51	\$3,200,000	\$2,900,000
68. 6505 Poplar St, Apt 6808, New York, NY	New York, NY	3/1/47	7/1/52	\$3,250,000	\$2,950,000
69. 6606 Sycamore St, Apt 6909, New York, NY	New York, NY	5/1/48	9/1/53	\$3,300,000	\$3,000,000
70. 6707 Walnut St, Apt 7010, New York, NY	New York, NY	7/1/49	11/1/54	\$3,350,000	\$3,050,000
71. 6808 Chestnut St, Apt 7101, New York, NY	New York, NY	9/1/50	1/1/55	\$3,400,000	\$3,100,000
72. 6909 Elm St, Apt 7202, New York, NY	New York, NY	11/1/51	3/1/56	\$3,450,000	\$3,150,000
73. 7010 Oak St, Apt 7303, New York, NY	New York, NY	1/1/52	5/1/57	\$3,500,000	\$3,200,000
74. 7101 Pine St, Apt 7404, New York, NY	New York, NY	3/1/53	7/1/58	\$3,550,000	\$3,250,000
75. 7202 Cedar St, Apt 7505, New York, NY	New York, NY	5/1/54	9/1/59	\$3,600,000	\$3,300,000
76. 7303 Birch St, Apt 7606, New York, NY	New York, NY	7/1/55	11/1/60	\$3,650,000	\$3,350,000
77. 7404 Spruce St, Apt 7707, New York, NY	New York, NY	9/1/56	1/1/61	\$3,700,000	\$3,400,000
78. 7505 Willow St, Apt 7808, New York, NY	New York, NY	11/1/57	3/1/62	\$3,750,000	\$3,450,000
79. 7606 Ash St, Apt 7909, New York, NY	New York, NY	1/1/58	5/1/63	\$3,800,000	\$3,500,000
80. 7707 Hickory St, Apt 8010, New York, NY	New York, NY	3/1/59	7/1/64	\$3,850,000	\$3,550,000
81. 7808 Maple St, Apt 8101, New York, NY	New York, NY	5/1/60	9/1/65	\$3,900,000	\$3,600,000
82. 7909 Poplar St, Apt 8202, New York, NY	New York, NY	7/1/61	11/1/66	\$3,950,000	\$3,650,000
83. 8010 Sycamore St, Apt 8303, New York, NY	New York, NY	9/1/62	1/1/67	\$4,000,000	\$3,700,000
84. 8101 Walnut St, Apt 8404, New York, NY	New York, NY	11/1/63	3/1/68	\$4,050,000	\$3,750,000
85. 8202 Chestnut St, Apt 8505, New York, NY	New York, NY	1/1/64	5/1/69	\$4,100,000	\$3,800,000
86. 8303 Elm St, Apt 8606, New York, NY	New York, NY	3/1/65	7/1/70	\$4,150,000	\$3,850,000
87. 8404 Oak St, Apt 8707, New York, NY	New York, NY	5/1/66	9/1/71	\$4,200,000	\$3,900,000
88. 8505 Pine St, Apt 8808, New York, NY	New York, NY	7/1/67	11/1/72	\$4,250,000	\$3,950,000
89. 8606 Cedar St, Apt 8909, New York, NY	New York, NY	9/1/68	1/1/73	\$4,300,000	\$4,000,000
90. 8707 Birch St, Apt 9010, New York, NY	New York, NY	11/1/69	3/1/74	\$4,350,000	\$4,050,000
91. 8808 Spruce St, Apt 9101, New York, NY	New York, NY	1/1/70	5/1/75	\$4,400,000	\$4,100,000
92. 8909 Willow St, Apt 9202, New York, NY	New York, NY	3/1/71	7/1/76	\$4,450,000	\$4,150,000
93. 9010 Ash St, Apt 9303, New York, NY	New York, NY	5/1/72	9/1/77	\$4,500,000	\$4,200,000
94. 9101 Hickory St, Apt 9404, New York, NY	New York, NY	7/1/73	11/1/78	\$4,550,000	\$4,250,000
95. 9202 Maple St, Apt 9505, New York, NY	New York, NY	9/1/74	1/1/79	\$4,600,000	\$4,300,000
96. 9303 Poplar St, Apt 9606, New York, NY	New York, NY	11/1/75	3/1/80	\$4,650,000	\$4,350,000
97. 9404 Sycamore St, Apt 9707, New York, NY	New York, NY	1/1/76	5/1/81	\$4,700,000	\$4,400,000
98. 9505 Walnut St, Apt 9808, New York, NY	New York, NY	3/1/77	7/1/82	\$4,750,000	\$4,450,000
99. 9606 Chestnut St, Apt 9909, New York, NY	New York, NY	5/1/78	9/1/83	\$4,800,000	\$4,500,000
100. 9707 Elm St, Apt 10010, New York, NY	New York, NY	7/1/79	11/1/84	\$4,850,000	\$4,550,000

Part II - Other Assets

1. Description of property

2. Location

3. Date acquired

4. Date sold

5. Selling price

6. Cost basis

7. Gain or loss

8. Other information

9. Other information

10. Other information

11. Other information

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77. Other information

78. Other information

79. Other information

80. Other information

81. Other information

82. Other information

83. Other information

84. Other information

85. Other information

86. Other information

87. Other information

88. Other information

89. Other information

90. Other information

91. Other information

92. Other information

93. Other information

94. Other information

95. Other information

96. Other information

97. Other information

98. Other information

99. Other information

100. Other information

Part III - Other Assets					
1. Description of property	2. Location	3. Date acquired	4. Date sold	5. Selling price	6. Cost basis
1. 123 Main St, Apt 101, New York, NY	New York, NY	1/15/80	12/31/85	\$100,000	\$80,000
2. 456 Elm St, Apt 202, New York, NY	New York, NY	3/10/81	6/15/86	\$120,000	\$95,000
3. 789 Oak St, Apt 303, New York, NY	New York, NY	5/20/82	9/10/87	\$150,000	\$110,000
4. 101 Pine St, Apt 404, New York, NY	New York, NY	7/1/83	11/1/88	\$180,000	\$130,000
5. 202 Cedar St, Apt 505, New York, NY	New York, NY	9/15/84	1/15/89	\$200,000	\$150,000
6. 303 Birch St, Apt 606, New York, NY	New York, NY	11/1/85	3/1/90	\$220,000	\$160,000
7. 404 Spruce St, Apt 707, New York, NY	New York, NY	1/1/86	5/1/91	\$250,000	\$180,000
8. 505 Willow St, Apt 808, New York, NY	New York, NY	3/1/87	7/1/92	\$280,000	\$200,000
9. 606 Ash St, Apt 909, New York, NY	New York, NY	5/1/88	9/1/93	\$300,000	\$220,000
10. 707 Hickory St, Apt 1010, New York, NY	New York, NY	7/1/89	11/1/94	\$350,000	\$250,000
11. 808 Maple St, Apt 1101, New York, NY	New York, NY	9/1/90	1/1/95	\$400,000	\$280,000
12. 909 Poplar St, Apt 1202, New York, NY	New York, NY	11/1/91	3/1/96	\$450,000	\$300,000
13. 1010 Sycamore St, Apt 1303, New York, NY	New York, NY	1/1/92	5/1/97	\$500,000	\$350,000
14. 1101 Walnut St, Apt 1404, New York, NY	New York, NY	3/1/93	7/1/98	\$550,000	\$380,000
15. 1202 Chestnut St, Apt 1505, New York, NY	New York, NY	5/1/94	9/1/99	\$600,000	\$400,000
16. 1303 Elm St, Apt 1606, New York, NY	New York, NY	7/1/95	11/1/00	\$650,000	\$450,000
17. 1404 Oak St, Apt 1707, New York, NY	New York, NY	9/1/96	1/1/01	\$700,000	\$480,000
18. 1505 Pine St, Apt 1808, New York, NY	New York, NY	11/1/97	3/1/02	\$750,000	\$500,000
19. 1606 Cedar St, Apt 1909, New York, NY	New York, NY	1/1/98	5/1/03	\$800,000	\$550,000
20. 1707 Birch St, Apt 2010, New York, NY	New York, NY	3/1/99	7/1/04	\$850,000	\$580,000
21. 1808 Spruce St, Apt 2101, New York, NY	New York, NY	5/1/00	9/1/05	\$900,000	\$600,000
22. 1909 Willow St, Apt 2202, New York, NY	New York, NY	7/1/01	11/1/06	\$950,000	\$650,000
23. 2010 Ash St, Apt 2303, New York, NY	New York, NY	9/1/02	1/1/07	\$1,000,000	\$700,000
24. 2101 Hickory St, Apt 2404, New York, NY	New York, NY	11/1/03	3/1/08	\$1,050,000	\$750,000
25. 2202 Maple St, Apt 2505, New York, NY	New York, NY	1/1/04	5/1/09	\$1,100,000	\$800,000

Table 1. Summary of the data collected during the field study.

Location	Time	Temperature (°C)	Humidity (%)	Wind Speed (m/s)	Wind Direction
Station 1	08:00	25.0	65.0	1.5	SE
Station 2	09:00	26.0	68.0	2.0	SE
Station 3	10:00	27.0	70.0	2.5	SE
Station 4	11:00	28.0	72.0	3.0	SE
Station 5	12:00	29.0	75.0	3.5	SE
Station 6	13:00	30.0	78.0	4.0	SE
Station 7	14:00	31.0	80.0	4.5	SE
Station 8	15:00	32.0	82.0	5.0	SE
Station 9	16:00	33.0	85.0	5.5	SE
Station 10	17:00	34.0	88.0	6.0	SE

Notes: The data were collected at 10-minute intervals. The wind direction was recorded as SE (Southeast). The temperature and humidity were recorded at the center of the study area.

Table 2. Summary of the data collected during the laboratory study.

Location	Time	Temperature (°C)	Humidity (%)	Wind Speed (m/s)	Wind Direction
Station 1	08:00	25.0	65.0	1.5	SE
Station 2	09:00	26.0	68.0	2.0	SE
Station 3	10:00	27.0	70.0	2.5	SE
Station 4	11:00	28.0	72.0	3.0	SE
Station 5	12:00	29.0	75.0	3.5	SE
Station 6	13:00	30.0	78.0	4.0	SE
Station 7	14:00	31.0	80.0	4.5	SE
Station 8	15:00	32.0	82.0	5.0	SE
Station 9	16:00	33.0	85.0	5.5	SE
Station 10	17:00	34.0	88.0	6.0	SE

Notes: The data were collected at 10-minute intervals. The wind direction was recorded as SE (Southeast). The temperature and humidity were recorded at the center of the study area.

Table 3. Summary of the data collected during the field study.

Location	Time	Temperature (°C)	Humidity (%)	Wind Speed (m/s)	Wind Direction
Station 1	08:00	25.0	65.0	1.5	SE
Station 2	09:00	26.0	68.0	2.0	SE
Station 3	10:00	27.0	70.0	2.5	SE
Station 4	11:00	28.0	72.0	3.0	SE
Station 5	12:00	29.0	75.0	3.5	SE
Station 6	13:00	30.0	78.0	4.0	SE
Station 7	14:00	31.0	80.0	4.5	SE
Station 8	15:00	32.0	82.0	5.0	SE
Station 9	16:00	33.0	85.0	5.5	SE
Station 10	17:00	34.0	88.0	6.0	SE

Notes: The data were collected at 10-minute intervals. The wind direction was recorded as SE (Southeast). The temperature and humidity were recorded at the center of the study area.

Table 4. Summary of the data collected during the laboratory study.

Location	Time	Temperature (°C)	Humidity (%)	Wind Speed (m/s)	Wind Direction
Station 1	08:00	25.0	65.0	1.5	SE
Station 2	09:00	26.0	68.0	2.0	SE
Station 3	10:00	27.0	70.0	2.5	SE
Station 4	11:00	28.0	72.0	3.0	SE
Station 5	12:00	29.0	75.0	3.5	SE
Station 6	13:00	30.0	78.0	4.0	SE
Station 7	14:00	31.0	80.0	4.5	SE
Station 8	15:00	32.0	82.0	5.0	SE
Station 9	16:00	33.0	85.0	5.5	SE
Station 10	17:00	34.0	88.0	6.0	SE

Notes: The data were collected at 10-minute intervals. The wind direction was recorded as SE (Southeast). The temperature and humidity were recorded at the center of the study area.

Table 5. Summary of the data collected during the field study.

Location	Time	Temperature (°C)	Humidity (%)	Wind Speed (m/s)	Wind Direction
Station 1	08:00	25.0	65.0	1.5	SE
Station 2	09:00	26.0	68.0	2.0	SE
Station 3	10:00	27.0	70.0	2.5	SE
Station 4	11:00	28.0	72.0	3.0	SE
Station 5	12:00	29.0	75.0	3.5	SE
Station 6	13:00	30.0	78.0	4.0	SE
Station 7	14:00	31.0	80.0	4.5	SE
Station 8	15:00	32.0	82.0	5.0	SE
Station 9	16:00	33.0	85.0	5.5	SE
Station 10	17:00	34.0	88.0	6.0	SE

Notes: The data were collected at 10-minute intervals. The wind direction was recorded as SE (Southeast). The temperature and humidity were recorded at the center of the study area.

Table 6. Summary of the data collected during the laboratory study.

Location	Time	Temperature (°C)	Humidity (%)	Wind Speed (m/s)	Wind Direction
Station 1	08:00	25.0	65.0	1.5	SE
Station 2	09:00	26.0	68.0	2.0	SE
Station 3	10:00	27.0	70.0	2.5	SE
Station 4	11:00	28.0	72.0	3.0	SE
Station 5	12:00	29.0	75.0	3.5	SE
Station 6	13:00	30.0	78.0	4.0	SE
Station 7	14:00	31.0	80.0	4.5	SE
Station 8	15:00	32.0	82.0	5.0	SE
Station 9	16:00	33.0	85.0	5.5	SE
Station 10	17:00	34.0	88.0	6.0	SE

Notes: The data were collected at 10-minute intervals. The wind direction was recorded as SE (Southeast). The temperature and humidity were recorded at the center of the study area.

STUDIES IN EFFECTIVENESS OF CONTROL MEASURES

By E. E. Honey (1937 Report)

INTRODUCTION

During 1937 studies, initiated in 1935 in the North Central Region on the effectiveness of the White Pine Blister Rust Control program, have been continued, and expanded. As stated in previous reports these studies may be divided into two major groups, viz., (1) Pine Infection Study Plots and (2) Ribes Regeneration Study Plots, each of which may be subdivided as suggested in the accompanying table.

Studies in Effectiveness of Control Measures

I. Pine Infection Study Plots

- (a) Established prior to the performance of initial Ribes eradication.
 - (1) In swamp
 - (2) In upland
 - (3) In swamp and upland
- (b) Established after initial Ribes eradication has been performed.
 - (1), (2), and (3) as under (a) above.
- (c) Established where Ribes eradication has not and will not be performed.
 - (1), (2), and (3) as under (a) above.

II. Ribes Regeneration Study Plots

- (a) Established in Ribes Type A Swamp.
- (b) Established in Ribes Type B Swamp.
- (c) Established in Ribes Type C Upland.
- (d) Established in Ribes Type D Upland.

STUDY PLOTS ESTABLISHED IN NORTH CENTRAL REGION

Maps I to V give the location of study plots in the six states of Ohio, Indiana, Michigan, Wisconsin, Minnesota and Iowa in the North Central Region. Counties in which study plots are located are indicated by red hatching and circles for Ribes regeneration study plots and by green dots for pine infection study plots. The number of Ribes study plots within the county is given in the red circle.

No pine infections study plots have been established in Ohio, Indiana, Illinois or Iowa. At present four established plots are

located in Upper Michigan; viz., Calumet, Marquette, Deer Lake and Tautou Lake. During 1937 no data were taken on any of the pine infection study plots in Upper Michigan. The Deer Lake and Tautou Lake Pine Infection Study Plots are not being actively followed at present. In previous years, observations on pine infection have also been made in the Halpuk Pine Infection area. In the July monthly report for Upper Michigan, Mr. John K. Kneober states that, "the 160 acre pine area at Halpuk, Dickinson County, in which almost every tree was infected with blister rust to some degree is now being cut. The timber was being used for saw timber, pulp and cabin logs. After this tract is logged off there will be very little left as it is being cleared out." To what extent further observations in this area can be profitably made can only be determined by future examination after logging operations are completed.

Three pine infection study plots have been under observation in Lower Michigan, viz., the Starr Estate in Leelanau County and the Anthony and Tannock Creek in Newaygo County. No data were taken on the Starr Estate Pine Infection Study Plot during 1937 but both pine infection and blight present were recorded during September on the other two study plots in Newaygo County.

Four pine infection study plots; viz., New Hope, Garfield, Charles River, and Rhinelander had been established in Wisconsin prior to 1937. An attempt was made to take data on the New Hope Pine Infection Study Plot during 1937 but as it was late in the season (November) and weather conditions unfavorable for accurate taking of data this was discontinued. Snowfall, ice covering, and a low temperature which rendered the winter and branches very brittle, made it advisable to wait until the following season to continue the taking of data.

Between August 26 and 31, 1937 a new one-acre study plot, designated as the Pittsfield Pine Infection Study Plot, was established in Brown County, Wisconsin near Green Bay. This study plot was established in an upland pine, hardwood woods-park (Ribe type-C) where the white pine trees were somewhat scattered and mostly of reproduction size favorable for study and the taking of data. Good-sized numbers of *Ribe cynosuroides* were scattered throughout the pine and it is not planned to eradicate the *Ribe* at present. The study plot was established because it was believed blister rust infection was of relatively recent origin, and with a low percentage of trees infected. The cankers were mostly in early stages and, in initiating this study plot, certain details of the canker stages not recorded previously were taken. Each tree, and likewise each canker, was assigned a separate number and recorded. The south edge of the plot study plot bordered along the north edge of all dense hardwood timber which greatly shaded the south side of this strip. Pine infection appeared to have been influenced by this association as it was heaviest close to the tall timber.

In Wisconsin all five of the pine infection study plots are in upland pine-hardwood timber types (Ribe type-C). On two of these pine study plots (New Hope and Charles River) *Ribe* eradication has been performed and on three it has not been performed to date.

A very important problem regarding the control program is related to the influence of swamp Ribes upon the spread of blister rust in nearby upland pine. It is believed that Wisconsin should furnish excellent conditions for making a study of the influence of swamp Ribes on pine infection and it is hoped that such a plot may be established before the best locations for such studies have been given the initial Ribes eradication.

For a study of the influence of swamp Ribes on white pine the following conditions are desired:

- (1) White pine reproduction of a size and age favorable for observation and study on upland (Ribes Type-C) bordering a typical swamp (Ribes Type-A).
- (2) Pine and Ribes in an area in which initial Ribes eradication has not been performed in either swamp or upland.
- (3) White pine blister rust present on both white pine and swamp Ribes.

The more extensive the area available for study, the more varied the conditions could be made for study of the influence of swamp Ribes on white pine.

Prior to 1937 four pine infection study plots had been established in Wisconsin, viz., Detroit Lakes in Becker County, Portage Lake in Crow Wing County, Milaca in Mille Lacs County and Horseshoe Lake in Gnosau Township, St. Louis County.

No data were taken on the Horseshoe Lake Pine Infection Study Plot, which was established for the study of the influence of Swamp Ribes on white pine blister rust infection, during 1937. Pine data only were taken on six square chains of the Detroit Lakes Plot; Ribes data only were taken on the 20 square chains composing the Portage Lake Plot; and the Milaca Plot was expanded to include an area approximately seven square chains in each direction from the pine block and both pine and Ribes data taken in 1937.

During the season of 1937 several Ribes regeneration study plots consisting of 15 chains in length and 13.2 feet or $1/5$ chain in width were initiated in upland areas. Larger study plots in the upland, (Ribes Type-C) as contrasted with swamp conditions (Ribes Type-A) are believed to give a better sampling because Ribes bushes are more scattered within the upland.

PROCEDURE

Details of procedure employed in establishing and studying pine and Ribes plots during 1937 were essentially the same as reported in 1936 and 1937 (See 1936 and 1937 Reports). The "Ribes Inspection" sheet has been slightly revised to facilitate the taking of Ribes data in the future.

on either permanent plots or for isolated observations. (See Form I). Similarly slight modifications were made in the "Pine Infection Square Chain Map" sheet to facilitate the summary of tree, Ribes and cover data (See Form II). Two new forms were formulated for the taking of special details of the canker studies (See Forms III and IV). An attempt was made to collect phenologic data from the various states by counties, in so far as possible, and a special form has been arranged to be used next year for collection of such phenologic information (See Form V).

PINE INFECTION STUDY PLOTS 1937

North Central Region

In the following section a brief summary of 1937 data on pine and Ribes study plots is given for the North Central Region and for each state in the Region. For a more complete summary of the individual study plots reference should be made to the 1937 Reports for the individual plots.

Table I gives a summary of general items regarding the pine plots as taken during 1937. A total of 2,724 white pine trees was examined of which 9% was infected, 7.5% had been killed by blister rust making a total of 16.5% affected with blister rust. A total of 835 cankers was observed on these plots which gives an average of 4.5 cankers per infected tree or 0.3 canker per examined tree. Table II gives a summary of the "Number of Trees First Becoming Infected by Year's Growth First Infected" on the pine plots observed in 1937. Table II differs from Table I, however, as there is included here all of the pine studied on the entire 13 square chains (1936 and 1937 data) instead of only for six square chains (1937 data) on the Detroit Lakes Pine Infection Study Plot. Thus the total number of trees examined on these study plots becomes 4,430 of which 363 or 8.2% were infected and 296 or 6.7% were killed by blister rust which makes a total of 659 or 14.9% affected with blister rust. A total of 278 or 6.2% of the examined trees had died from other cause and 3,495 or 78.9% did not show blister rust cankers.

Chart I gives a graphic representation of the percentage of examined trees infected on the Anthony and Tamarack Creek Pine Infection Study Plots in Newaygo County, Lower Michigan; Chart II gives a similar graphic representation of the Pittsfield Pine Infection Study Plot in Brown County, Wisconsin; and, Chart III shows the percentage of examined trees for each of these pine infection study plots in Minnesota together with an average for the three Minnesota plots. A total of 1,031 cankers was observed on the 363 infected trees. This gives an average of 2.8 cankers per infected tree or 0.23 canker per examined tree.

The original amount of Ribes was either obtained or estimated on these study plots (See Table II) and the amount of Ribes present in 1937 is also given in Table II. On the six pine study plots reported in Table II a total of 1,616 bushes with 28,803.8 F.L.S. and 2,132 seedlings was found present in 1937. Only three or half of these pine plots had ever had initial Ribes eradication performed on them.

The area included in these six pine infection study plots was 7 square chains.

Table III gives a "Summary of Cankers Appearing on the Different Year's Growth at Canker Center" for 1937 data.

On the Anthony and Fenaruck Creek Pine Infection Study Plots the year's growth with greatest infection was 1934, on which 29.3% of the cankers was formed. Doubtless the initial Ribes eradication performed in 1936 accounts for the low number and cessation of infection after 1934. There was also somewhat of a peak of infection on these two pine plots in 1931.

On the Pittsfield Study Plot in Wisconsin the year 1934 was the peak year for infection. The majority of infections on 1935 and 1936 wood was, in doubt, not evident by 1937. Infection on this study plot is just emerging from the introductory period.

In Minnesota a peak of pine infection is evident in 1927 and again in 1931. Ribes eradication on the Detroit Lakes Pine Study Plot, of course, interrupted the normal progress and intensification of the disease.

Table IV gives "Tree and Canker Summaries according to Height Classes" for 1937. Two foot height classes were used up to 20 feet. Anything up to 0.3 of a foot arising from a seed was recorded as a seedling tree. These seedlings were from seeds germinating in 1936 or 1937. For the Region as a whole trees were distributed throughout the height classes. Height class 0.1-2.0 feet with 35.1% of the total examined trees had the largest number of trees. Height class 14.0-20.0 feet with 17% of the trees infected had the heaviest infection. Height class 2.1-4.0 feet had the greatest percentage (12.3%) of trees killed by blister rust. This same height class (2.1-4.0 feet) also had the largest percentage of trees (20.0%) affected with blister rust. Height class 10.1-20.0 feet was a class second with 17.1%.

Further references may be made to the above mentioned tables in the following discussion of the individual pine infection study plots.

Michigan

A. Anthony Pine Infection Study Plot.

This study plot is located in the most important white pine blister rust infection area (Newaygo County) in the lower peninsula. The study plot was established for the purpose of determining the extent of the infection and the effectiveness of the control measure of Ribes eradication, which had been performed just prior to the establishment of the plot, under the conditions prevailing in this area.

The plot consists of five square chains on sandy loam upland (Siltic Type C) soil which the white pine ranged from small seedlings to trees 50 feet in height. The white pine was somewhat suppressed by an overstory of oak.

The original Ribes (*R. cynosbati*) had been eradicated shortly before the establishment of the study plot. The estimated original Ribes and the

Ribes regeneration present in September, 1937 are given in Tables II and III. *R. cynosbati* appears to have been responsible for both the introduction and intensification of blister rust in this area. Infection started in 1923 with a single canker. According to both 1935 and 1937 data no increase in blister rust infection took place in the next two years (1925 and 1927). From 1929 until 1933 the amount of infection increased to a maximum. The Ribes eradication in October 1935, while not complete, appears to have halted further blister rust infection with the exception of one canker recorded in September 1937 as occurring on 1936 growth. This one canker may have been misread or erroneously recorded or it may have resulted from inoculum from missed bushes since the initial Ribes eradication was a late fall eradication and the following year it was believed necessary to perform two separate mop-up jobs on this area.

Table II (column b) shows that only one additional tree became infected in 1935 and Table III and V-a shows that in all 11 cankers only developed on the plot after 1934.

It required 10 years (1923-1933 inclusive) for 44.3% of the trees to become infected and 16.4% to be killed, making a total of 60.7% of the wooded trees affected with blister rust.

According to Table V-a, 511 cankers of which 250 or 48.9% were dead, 26 or 5.1% had produced aecia more than once, 46 or 9.0% had produced aecia for the first time, 164 or 32% were in the pycnial scar stage, 2 or 0.4% had formed pycnia once and 2 or 0.4% were in the incipient stage were formed on 32 infected trees. A total of 36 trees had been killed by blister rust by September 1937. In 1937 of the total cankers present, 36.8% was living but not producing aecia, 14.3% produced aecia, and 48.9% was dead. The proportion of cankers (on living trees) which had not yet produced aecia in 1937 was as follows:

Year's Growth at Canker Center	Number Cankers	Percentage Not Producing Aecia
1930	4	6.9
1931	5	6.2
1932	7	9.6
1933	51	44.7
1934	5	74.7
1935	6	70.0
Totals	78	31.5

According to the 1935 report on this study plot a total 109 trees with 476 cankers and two trees killed by blister rust was reported. Also according to the 1937 report a total of 62 trees with 511 cankers and 36 trees killed by blister rust was reported. However, when the history of each tree and canker is traced over this period it is found that the composite number of trees which have become infected is 134 with a total of 760 cankers. Thus any one year's record does not give the complete composite infection picture for the plot over a period of time necessarily, but merely as it appears at that particular time.

Pine infection was well distributed over the various height classes. The greatest number of cankers (108) occurred in height class 4.1-6.0 feet. The greatest number of infected trees was in height class 3.1-4.0 feet and the highest percentage of infected trees was in height class 11.1-14.0 feet. In Table IV the tree and canker summary for this study plot is merged with that of the Tamarack Creek Pine Infection Study Plot.

A total of 1,766 Ribes seedlings and a total of nine white pine seedlings were recorded on this half-acre study plot. Data on the future survival of the Ribes seedlings will be of great interest.

8. Tamarack Creek Pine Infection Study Plot.

The Tamarack Creek Pine Infection Study Plot, consisting of two square chains, is located in Newaygo County, Lower Peninsula, Michigan, close by Tamarack Creek in an upland pine-hardwood timber type (Ribes Type-C). The older examined white pine trees, ranging up to about 18 feet, were somewhat suppressed by an oak and elm overstory.

The purpose of establishing this study plot was to follow the normal progress of blister rust under the ecological conditions obtaining here, and since the Ribes had not been eradicated from this area at the time, to serve as a companion or check study plot with the Anthony Pine Infection Study Plot upon which Ribes eradication already had been performed. This latter purpose was defeated, however, as the Ribes were eradicated the following summer.

The original Ribes were estimated and the Ribes regeneration present on the study plot is given in Tables II and III (columns 4). An interesting feature of the Ribes regeneration is the large number of seedlings (876) on the two square chains similar to that found on the Anthony Pine Infection Study Plot and for that reason these two study plots are of special interest as a study of Ribes seedlings survival.

In 1936 a total of 43 trees of which 15 or 37.2% were infected with blister rust was found on this study plot. In 1937 a total of 181 trees and white pine seedlings of which 10 or 5.5% were infected was found on the study plot (See Table II column 4). The great increase of white pine trees appears to be caused by the abundant germination of 1936 pine seed during the moist summer of 1937. White pine seedlings, numbering 107, were observed on the two square chain study plot. The survival of white pine seedlings on this plot will also make an interesting study.

In 1936, a total of 36 cankers on 18 infected trees was found on this study plot. No white pine trees had been killed by blister rust. In 1937 a total of 32 cankers on 10 infected trees was present and six trees had been killed by blister rust. (See Tables II column 4, III column 4 and V-b). Of the 32 cankers present on living infected trees 14 or 43.8% were dead, 1 or 3.1% had formed scabs more than once, 5 or 15.6% had formed scab once, 12 or 37.5% were in the pycnial scar stage, and 2 or 6.3% were in the first pycnial stage. No incipient cankers were present. From this it may be calculated (See Table V-b column (j) to (l) inclusive) that of the cankers on living trees is 123%,

48.7% was dead, 13.8% had produced cones in 1957 and 38.5% of the cankers were living but had not produced seeds up to the fall of 1957. The yearly proportion of cankers (on living trees) which had not yet produced seeds was:

Year's Growth at Canker Center	Number Cankers	Yearly Percentage Not Producing Seeds
1953	1	60.0
1954	8	88.5
Totals	9	74.7

A comparison of trees and cankers by years reveals that a composite picture of infection based on 1953 and 1957 records gives a total of 19 trees infected with 50 cankers during the eight year period between 1946 (when one tree with a single canker became infected) and 1954. No additional cankers have been observed on white pine growth since 1954 on this study plot.

Blister rust infection was found on two-foot height classes between 0.5-2.0 feet and 12.1-14.0 feet. The highest percentage of pink trees affected was 88.7% found in height class 4.1-6.0 feet and height class 8.1-10.0 feet second with 42.9% of the trees affected. The greatest number of cankers (15) occurred in height class 4.1-6.0 feet and the second greatest number of cankers (13) was in height class 8.1-10.0 feet.

Wisconsin

G. Pittsfield Pine Infection Study Plot

The Pittsfield Pine Infection Study Plot consisting of 10 square chains is located in Brown County, Wisconsin in an upland hardwood timber type which is used as a woods-pasture (Riber Type-C). The hardwoods had to be cut from a portion of this area and the study plot established among white pine reproduction seedling in to the north and adjacent to a tall dense hardwood timber. The white pine trees were somewhat scattered and open overhead except for the shade cast by the tall hardwood timber to the south.

This area had been located when in search of a pine area with low percentage of blister rust infection (1.0% or less) where Riber eradication had not been performed. A larger number of trees was found to be infected than originally expected but because of the apparently recent origin of the infection in this area and the early stages present it was decided to initiate a small study plot here and to take, in addition to the regular tree infection data, certain details of the canker stages and conditions not attempted previously on the study plots containing higher percentages of pine infection. The area in which this plot was established had not been nor is expected to be given a Riber eradication so that the normal progress of the tree infection and canker development with the native Riber present can be observed for some years in the future.

A Ribes count gave a total of 205 bushes of *R. cynosbati* with 9,431.0 feet of live stem on the one-acre study plot (See Table II, column h; III, column h). This amount of Ribes is equivalent to 0.8 bush with 37.7 F.L.S. per examined tree or 11.3 bushes with 823.4 F.L.S. per infected tree. There is an average of 3.2 bushes and 147.4 F.L.S. of Ribes per blister rust canker on this study plot. It is of interest to note that infections on white pine and on Ribes were found on the same four square chains only and not on the other six square chains composing the study plot.

A grand total of 252 white pine trees, two of which were too high to examine, was found on the 10 square chain study plot (Table II columns h and i). Of the 250 examined trees 18 or 7.2% showed symptoms of blister rust infection. No trees had been killed by blister rust and trees dead from other causes were not found on the plot. A total of 232 trees or 92.8% appeared healthy at the time they were examined in late August, 1937.

The first recognized tree infection was on 1931 growth. Three cankers, one producing aecia more than once, one producing first aecia and one having formed pycnial scars on separate trees were reported on 1931 growth. It is possible somewhere in the near vicinity of the study plot an older pine infection occurred in this infection area, but, if so, it was not located and we may assume that the amount (7.2%) of tree infection had developed during the six or seven years prior to taking the data.

Tables III (columns h and i and V-a) give a summary of cankers by year's growth at the center of the cankers. A total of 54 cankers was found on the 18 infected trees. Of the 54 cankers, 11 or 17.2% were dead, 1 or 1.6% formed aecia more than once, 1 or 1.6% had formed aecia for the first time in 1937, 11 or 17.2% had formed pycnia several years (scars), 24 or 37.4% had formed pycnia for the first time in 1937 and 16 or 28% were in the incipient stage. The yearly proportion of cankers (on living trees) which had not yet produced aecia was:

Year's Growth at Canker Center	Number of Cankers	Yearly Percentage Not Producing Aecia
1931	1	33.3
1932	0	0.0
1933	14	93.3
1934	52	75.2
1935	3	100.0
1936	1	100.0
1937	—	—
Totals	61	72.7

0 Includes incipient and pycnial cankers.

The following data regarding cankers which had or probably had formed aecia sometime during the period from 1931 to 1937 inclusive have been calculated:

Year of Growth at Canker Center	Producing Acacia 1957 only*		Acacia Pro- duced Prior to 1957**		Total Acacia Produced on Study Plot***	
	Number	%	Number	%	Number	%
1951	2	86.7	0	0.0	2	86.7
1953	0	-	0	-	0	100.0
1955	0	0.0	2	6.7	2	6.7
1956	0	0.0	10	28.6	10	28.6
1958	0	0.0	0	0.0	0	0.0
1959	0	0.0	0	0.0	0	0.0
1961	-	-	-	-	-	-
Total:	-	1.1	12	34.3	12	34.3

* Includes "First Acacia" and "Acacia More Than Once."

** Includes "Dead" and "Acacia More Than Once."

*** Includes "First Acacia", "Acacia More Than Once", and "Dead" cankers (1951 - 1967 inclusive).

In adding all the "dead" cankers to the total to obtain the summary producing acaciaporia inoculum an error is introduced because not all dead cankers have produced acacia. However, since it is probable that some have produced acacia than have not the least error is introduced by placing all "dead" cankers into the category of having produced acacia.

Of the 84 cankers, 41 or 48.8% had killed the twig, branch or trunk, as the case might be, from the canker to the extremity, and thereby formed "flags".

An average of 3.8 cankers per infected tree and 0.28 cankers per uninfected tree occurred on this study plot.

The data also shows that of the 84 cankers, 41 or 48.8% occurred on twig (0.5 inch or less in diameter), 14 or 16.7% occurred on the branches, 2 or 2.4% occurred on both branch and trunk (branch-trunk), 5 or 5.9% on the trunk and 2 or 2.4% on undetermined organ (as the organ affected was not recorded).

A summary of the height classes is given in Table IV (columns 1 to 4). Infection was found upon trees ranging from 2.1-15.0 feet in height only. The height class from 10.1-15.0 feet with 19.6% of the trees infected had the greatest amount of infection (29 cankers); height class 4.1-6.0 feet with 18.7% of the trees infected had the second greatest amount of infection (27 cankers); height class 6.1-8.0 feet came third with 9.8% of the trees infected (8 cankers); height class 8.1-10.0 feet with 6.7% of the trees infected (4 cankers) came last and height class 2.1-4.0 feet with 4.0% of the trees infected had approximately the same amount of infection (5 cankers). The height class 10.1-15.0 feet had approximately three times the percentage of trees infected as any of the other height classes and, with the exception of height class 4.1-6.0 feet, a considerably larger number of cankers.

Minnesota

D. Detroit Lakes Pine Infection Study Plot.

The Detroit Lakes Pine Infection Study Plot, consisting of 13 square chains upon which white pine infection has been studied and a total of 118 square chains upon which Ribes data have been recorded, is located in Becker County, Minnesota in an upland hardwood timber type which is used as a woods pasture (Ribes Type C). The location is very near the west edge of the white pine range in the Middle West.

A strip pine infection study was made in this area by Messrs. H. E. Putnam, F. F. Franklin, and Donald M. Stewart on September 21, 1934, shortly after the initial Ribes eradication work had been performed in this area.

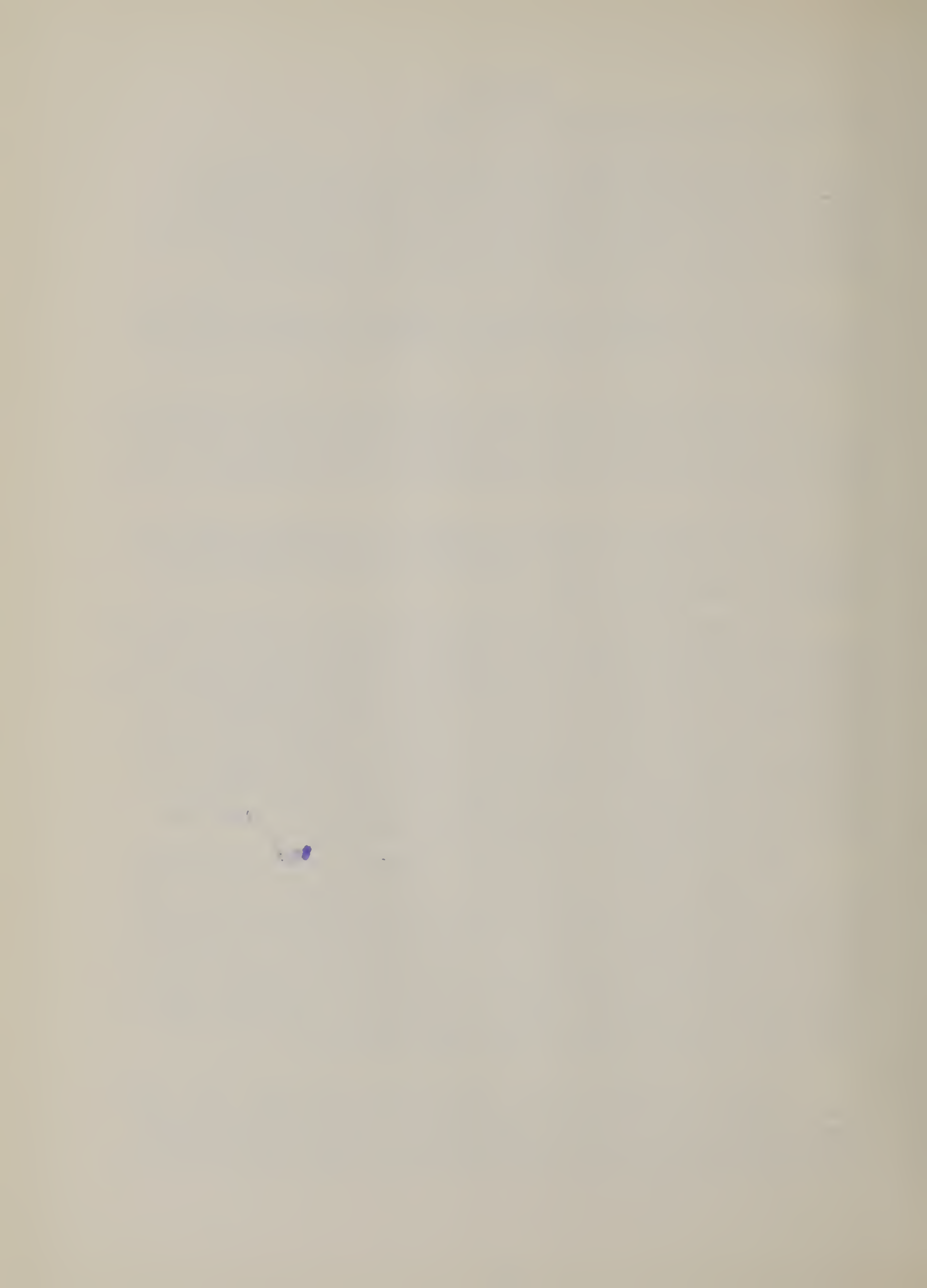
The study plot was established here in October 1936 to determine the effectiveness of the initial Ribes eradication, to compare the present picture of pine infection with that obtained in 1934 on the strip study and to study the amount of Ribes regeneration and its influence on future pine infection.

In 1936 data were recorded on seven of the 13 square chains laid out for the pine plot. In 1937, the record of the pine infection was completed and this report will, therefore, include the study based on records for both 1936 and 1937.

The original Ribes on this study plot have been estimated from the eradication records of 1934 as 32.7 bushes with 892.4 F.O.L.S. per square chain which is equivalent to about 425 bushes with 5,101.2 F.O.L.S. on the 13 square chains upon which tree infection was recorded (See Tables II and III, column j). In 1936 a total of 77 bushes with 122.8 F.O.L.S. or an average of 5.9 bushes with 9.5 F.O.L.S. per square chain was found on the 13 square chain pine block (See Tables II and III column j). On the 118 square chains, on and surrounding the pine block an average of 7.2 bushes with 20.6 F.O.L.S. per square chain was found. Four species of Ribes; viz., R. cynosbati, R. hirtellum, R. triste and R. americanum were recorded on or in the vicinity of the pine block.

Table II (column j and k) gives a summary of the tree infection on the 13 square chains. A grand total of 2,368 trees was found on the 13 square chains, five of which were too high to examine. Of the 2,363 examined trees, 177 or 7.5% were infected, 250 or 10.6% had been killed by blister rust, making a total of 427 or 18.1% affected with blister rust; 228 or 9.6% were reported dead from other cause and 1,703 or 72.3% did not show symptoms of blister rust. The first tree infected with a single canker was recorded in 1922. No additional trees became infected after 1933 so that the above reported tree infection apparently took place over a period of 13 years (1922-1934 inclusive).

Table III (column j and k) and V-d give summaries of the canker data. A total of 339 cankers was reported for the 13 square chain pine block of which 181 or 53.4% were dead, 105 or 31.0% had produced aecia more than once, 31 or 9.1% had produced aecia but once, 19 or 5.6% had only reached the pycnial scar stage and 3 or 0.9% had produced aecia for



the first time. No incipient cankers were found. Of the 339 cankers 289 or 85.0% had killed the affected organ beyond the canker, thus forming "flags". 136 or 40.1% had produced aecia in 1937, and 22 or 6.5% had not produced aeciosporic inoculum as yet. The proportion of living cankers which had not produced aecia in 1937 was as follows:

Year's Growth at Canker Center	Number Cankers	Percentage Not Producing Aecia
1927	1	1.7
1928	1	2.9
1929	1	2.8
1930	1	1.9
1931	9	18.4
1932	7	22.6
1933	1	9.1
Undetermined	1	50.0
Totals	24	4.0

Table IV (columns v to ee) includes the Detroit Lakes Pine Study Plot along with those of Portage Lake and Milaca with regard to height class data. On the Detroit Lakes Pine Study Plot the taller trees show progressively a higher percentage of blister rust infection. Height class 8.1-10.0 feet has the greatest number of cankers although height class 18.1-20.0 feet has the greatest percentage of infection. Tree above 10 feet in height were examined to eight foot heights only, yet these taller trees showed 20% to 50% infection in each height class. The number of trees killed by blister rust is greatest in the 0.1-2.0 foot height class and lessens progressively in the height classes above this.

A comparison of tree infection data taken on a 13.2 foot strip in 1934 with the 1935-1937 data shows a resemblance although it is evident that some trees reported as infected in 1934 had been killed by blister rust by 1938 and 1937.

E. Portage Lake Pine Infection Study Plot.

The Portage Lake Pine Infection Study Plot consisting of 20 square chains is located along the east edge of Portage Lake in Crow Wing County, Minnesota in a swamp apparently of a muskeg type but now sufficiently dry to support a stand of white pine reproduction seeding in from several older seed trees in the vicinity of the lake and a ground cover of swamp spirea, swamp grass and blackberries (Ribes Type-B). There was an average of about 570 trees per acre on the study plot, the majority of which ran from 4 to 18 feet in height.

The area in which this study plot is located was found when in search of an area in which a very small percentage (1.0% or less) of white pine blister rust was present, where the original Ribes had not been disturbed by Ribes eradication crews and where the density of Ribes might be sufficiently small as to make probable a slow spread of the disease. This plot also would serve as a study on the ability of R. hirtellum to intensify

blister rust on pine since it appeared to be the chief if not the only species of Ribes present. After taking the data both the pine infection and amount of Ribes ran a little higher than had been hoped.

It was impossible to take the Ribes data in November 1936 because of a recent heavy snow but in October-November of 1937 this was secured for the 20 square chains upon which pine infection data had been taken in 1936. On the two acre study plot a total of 669 bushes with 7,200.3 F.L.S. was recorded. This gives an average of 334.5 bushes with 3,600.15 F.L.S. per acre. The average amount of Ribes per infected tree was 13.1 bushes with 141.2 F.L.S. and per blister rust canker on the white pine was 10.6 bushes with 114.3 F.L.S.

Table II (columns l and m) gives a tree summary for this study plot. There was a total of 1,146 examined trees on the plot, of which 51 or 4.5% were infected and 4 or 0.3% were killed by blister rust, thus making a total of 55 or 4.8% of the trees affected by blister rust. Thirty trees or 2.6% were dead from some other cause and 1,061 trees or 92.6% did not show signs or symptoms of blister rust. The largest amount of infection appeared to be located on the 9th square chain upon which, of a total of 149 examined trees was found one tree killed and eight trees (with 9 cankers) infected by the blister rust fungus. On this same square chain a total of 122 bushes with 661.7 F.L.S. was found which is equivalent to 0.82 bush with 4.46 F.L.S. per examined tree, 15.3 bushes with 83.1 F.L.S. per infected tree and 13.6 bushes with 73.9 F.L.S. per blister rust canker, not including the cankers on the one killed tree. The 14th square chain, adjoining the 9th to the north, was a close second because of 70 examined trees, 8 or 11.4% were infected with 11 blister rust cankers. A total of 66 bushes with 1,010.7 F.L.S. was found upon this square chain which is equivalent to 0.94 bush with 14.44 F.L.S. per examined tree, 8.3 bushes with 126.3 F.L.S. per infected tree, and 6.0 bushes with 91.9 F.L.S. per blister rust canker. The 10th square chain, adjacent to the 9th also, had 214 bushes with 1,542.8 F.L.S. the largest amount of Ribes on any of the square chains studied. On the 10th square chain there were 48 trees, 3 or 6.3% of which were infected and 1 or 2.0% killed by blister rust which gives a higher percentage (8.3%) than either on the 9th or 14th square chain. The amount of Ribes on the 10th square chain is equivalent to 4.5 bushes with 32.14 F.L.S. per examined tree, 71.5 bushes with 514.3 F.L.S. per infected tree, and 53.5 bushes with 385.7 F.L.S. per canker not including cankers on the one killed tree.

The earliest infected tree recorded on this study plot became infected on 1925 growth with a single canker. No additional trees have become infected since 1934 (1936 data) so that the amount of tree infection (4.5%) described above appears to have developed over a period of ten years.

Table III (columns l and m) and V-e give a summary of cankers by year's growth at the center of each canker. A total of 63 cankers on 51 infected trees was found on this two-acre study plot. Of the 63 blister rust cankers 4 or 6.4% were dead, 29 or 46.0% had formed aecia more than once, 7 or 11.1% had formed aecia for the first time in the spring of 1937, 21 or 33.3% were in the pycnial scar stage and 2 or 3.2% were in the first pycnial stage. No incipient cankers were noted. From this it is evident that 57.1% of the total cankers was producing aeciosporic inoculum. That

percentage of the 6.4% dead cankers had ever produced inoculum is not known. The percentage of cankers which is known never to have produced *acineoporia* inoculum up to 1936 and totalling 36.5% of all cankers is divided as follows:

Year's Growth at Canker Center	Number Cankers	Percentage Not Producing <i>Acacia</i>
1930	1	50.0
1931	6	37.5
1932	10	41.7
1933	4	50.0
1934	2	100.0
1935	-	-
1936	0	-
Totals	23	46.7

Table IV (columns v to ll inclusive) gives a tree and canker summary of all 1937 Minnesota pine infection study plots combined, including Portage Lake, according to two-foot height classes. The greatest number of infected trees on the Portage Lake Study Plot was found in height class 12.1-14.0. No trees in height class 0.1-2.0 feet were found infected, although one tree in this class was reported as killed by blister rust and 17 as dead from some other cause. It is possible that some of the 17 trees in this height class reported as dead from some other cause may have been killed by blister rust, but if so, the symptoms were sufficiently masked as to prevent recognition of such fact. With exception of height class 8.1-10.0 feet, the number of trees infected and number of cankers varied directly with the number of trees examined within each height class.

F. Milaca Pine Infection Study Plot.

The Milaca Pine Infection Study Plot, consisting of 1.4 acres of pine block and of about 33.8 acres examined for Ribes (See Table I columns c and d), is located in Mille Lacs County, Minnesota, in an upland pine-hardwood pasture (Ribes Type-C) and a swamp grass willow swamp (Ribes Type-B). This swamp was reported in 1936 as a Ribes Type-A but when studied in 1937 it was found that the majority represented more nearly a Ribes Type-B swamp. The area had been well cut-over so that outside of the small pine block only a few scattering pine and hardwoods remained in the portion used as pasture.

The location in which this study plot is located was found when in search of an area in which a very small percentage (1.0% or less) of white pine blister rust was present, where the original Ribes density had not been disturbed by Ribes eradication crews and where the density of Ribes might be sufficiently small as to make probable a somewhat gradual intensification of the disease. Four species of Ribes; viz., *R. cynosbati*, *R. americanum*, *R. hirtellum* and a relatively few *R. glandulosum* were found present on the study plot. Both 1936 and 1937 data showed no pine infection appearing after 1930. The only item learned which might have influenced pine infection here was that highway 169, which had

previously been routed farther east, had been re-routed and the concrete laid here in 1930. Whether the establishment of the highway eliminated certain Ribes stands responsible for the introduction and intensification of blister rust is not known. Infection of the blister rust fungus on Ribes appears to have been common on and near the pine block, both in 1936 and 1937, and it will be interesting to determine the factor or factors here inhibiting further pine infection. No cultivated black currants (*R. nigrum*) are known to be or to have been in the immediate vicinity of the pine block.

In 1936 pine infection data only was taken on seven square chains of the pine block. In 1937 the pine block was increased to 14 square chains and both pine infection and Ribes data taken on this block and on the surrounding area for a distance of approximately seven chains in each direction from the pine block.

Ribes eradication had never been performed on the area in which this study plot is located so that the Ribes present in 1937 represent the original Ribes before an initial eradication. Ribes eradication in this area is not being contemplated.

A total of 394 bushes with 2,244.4 feet of live stem was found on the pine block of 14 square chains (See Tables II and III columns n). Two of the 14 square chains had no Ribes. This amount of Ribes, therefore, is equivalent to an average of 52.8 bushes with 231.6 F.L.S. per square chain having Ribes or an average of 26.1 bushes with 169 F.L.S. for each of the 14 square chains on the pine block. The amount of Ribes on the 14 square chains of pine block represents an average of 24.6 bushes with 165.4 F.L.S. per affected tree or an average of 17.9 bushes with 120.3 F.L.S. per canker.

The Ribes data were taken and tabulated according to zones from 1 to 7 chains distant from the pine block. A total of 1,660 bushes with 23,984.6 F.L.S. was found within this area. Of a total of 338 square chains 111 had Ribes and 227 did not. The square chains west of State Highway No. 168 apparently had no Ribes; most of the Ribes were in the pasture upland to the east and south of the pine block and along the edges of the willow swamp. There was an average of 15 bushes with 216.1 F.L.S. per square chain with Ribes or an average of 4.9 bushes with 71 F.L.S. for the entire plot of 338 square chains.

The amounts of Ribes on the pine block and on the entire study plot by Ribes species are as follows:

Ribes Species	Location				Totals for the Entire Study plot		Percentages of Total Ribes	
	On the Pine Block		On the 7 zones surrounding the pine block					
	Bushes	F.L.S.	Bushes	F.L.S.	Bushes	F.L.S.	Bushes	F.L.S.
<i>R. hirtellum</i>	183	971.8	681	8,126.7	832	9,098.5	50.2	57.9
<i>R. cynosbati</i>	84	411.3	308	6,507.7	392	7,019.0	23.6	30.6
<i>R. amaricanum</i>	128	1,265.5	278	6,143.8	406	7,409.3	24.5	60.2
<i>R. glandulosum</i>	0	0.0	31	160.0	31	160.0	1.8	0.7
Totals	394	2,248.6	1,298	20,938.2	1,666	23,986.8	100.0	100.0

Ribes macrocarpum and the greatest part of live stem on one pine block and took second place for the entire study plot. R. hirtellum took second place on the pine block relative to feet of live stem, but first place on the entire study plot. R. cynosbati took third place, relative to amount of feet of live stem on both the pine block and the study plot. R. glandulosum did not occur on the pine block and to only a very limited extent on the entire study plot (appearing solely on the one square chain which most nearly approached Ribes Type A conditions).

A summary of tree infection is given in Table II (columns n and o). Tree infection on this study plot started with one tree infected with one canker in 1935. No trees initiated infection on 1926 or 1929 growth. Seven trees became infected first on 1927 growth, 5 trees on 1928 growth and two trees on 1930 growth. A total of 315 trees, of which three were too high to examine, was found on the study plot. Of the 312 examined trees 15 or 4.8% were infected, 1 or 0.3% was killed by blister rust, making a total of 16 or 5.1% trees affected with blister rust. Six or 1.9% trees were dead from other cause and 290 or 93.0% did not show any symptoms of blister rust. With but the exception of two trees (St. 23, Tr. 15,) all white pine on the pine block occurred in the upland area.

Tables III (columns a and c) and V-f give summaries of the canker data. A total of 22 cankers was observed on the 16 infected trees, 18 or 81.8% of which were dead and 4 or 18.2% had produced ascle more than once. No earlier stages were observed. It would appear that at least four cankers had produced ascle in the spring of 1937. There were no living cankers which had not produced ascle. Blister rust cankers first appeared on tree growth in 1925 and have ceased since 1932. From Table V-f it may be noted that 1927 was the year of highest peak of infection (54.5%) and that for some reason infection has not been conspicuous since.

Table IV (columns v to aa) includes the Milaca Pine Infection Study Plot along with the other Minnesota pine plots with regard to two-foot height class data. White pine trees occurred in every height class. Infected trees occurred in the following height classes:

12.1 - 14.0 -	1 infected tree with 1 canker
14.1 - 16.0 -	1 infected tree with 1 canker
16.1 - 18.0 -	1 infected tree with 1 canker
18.1 - 20.0 -	5 infected trees with 7 cankers
Over 20.0 feet	5 infected trees with 12 cankers
<u>Totals</u>	<u>16 infected trees with 22 cankers</u>

One tree found killed by blister rust in 1937 belonged to height class 6.1-8.0 feet. Trees over 20 feet in height had the greatest number of cankers, height class 18.1-20.0 came next and height classes 12.1-14.0, 14.1-16.0, and 16.1-18.0 feet each with one canker ranked equally in third place.

PERMANENT RIBES REGENERATION STUDY PLOTS

North Central Region

Since the summer of 1935 small Ribes regeneration study plots have been established in areas where Ribes were to be eradicated in the immediate future within several of the North Central States. In 1935, a total of 106 such permanent study plots was initiated. In 1936, 77 additional plots were established and data obtained from the older study plots. A few additional

plots were established in 1937. For one reason or another several of the study plots have been discontinued. However, at the present time a total of 183 Ribes regeneration study plots are under observation in the North Central Region. (See Table V).

Ribes regeneration study plots are established as one item to help determine the effectiveness of the general blister rust control program. By such study plots the course and rate of Ribes regeneration may be followed quantitatively, a check can be made on the feet of live stem left and its influence on further intensification of blister rust on white pine where infection is present, and the effective time for second Ribes eradication may be determined.

The technique employed in establishing permanent Ribes regeneration study plots given in the 1935 Annual Report (pp. 54 to 70) has with but slight modification been followed.

The Ribes regeneration study plots are established in areas in which the Ribes are soon to be eradicated and prior to the initial Ribes eradication in order to secure the original number of bushes and feet of live stem for each Ribes species per mileacre. Ribes eradication foreman and crews working the areas in which Ribes regeneration study plots are established are given no knowledge of the establishment and location of these study plots in order that typical Ribes eradication of the area may be secured. After the initial Ribes eradication has been performed a second inspection is made to determine the amount of Ribes removed and thereafter, annual inspections are made to determine the amount of regeneration.

In upland timber types (especially upland pine-hardwood types as Ribes Type-C) where the Ribes are scattered the practice has developed to make the Ribes regeneration study plots longer (up to 15 chains) in order to secure a good sampling of Ribes conditions and regeneration in such areas.

Longer study plots up to 15 chains in length for upland as compared to one or two chains in length for swamp conditions where Ribes density is greater (Ribes Type-A) are now employed. Because our major interest with crew work is in the upland timber types, the establishment of a greater number of the longer study plots in the upland rather than under swamp conditions is recommended. It is hoped that several of the longer study plots (at least up to 15 chains in length) may be established in each state in the North Central Region. The cost of crew work in swamps is so much greater than upland, and, from the evidence at hand, the danger from pine infection less from swamp Ribes that the tendency is to cut down the width of the protective zone in swamps to a relatively narrow margin. Thus the need of too many additional Ribes regeneration study plots within swamps decreases. It is important to have data on regeneration of swamp Ribes but the shorter study plots appear to give adequate samplings because the Ribes density is greater and commonly more uniform.

The one hundred and eighty-three Ribes regeneration study plots now established in the North Central Region are distributed as follows:-

State	Number of Ribes Plots and Year Plots were Established			Totals
	1935	1936	1937	
Michigan (Upper)	26	24	0	50
Michigan (Lower)	20	9	1	30
Wisconsin	16	5	2	23
Minnesota	22	40	1	63
Ohio	14	2	0	16
Iowa	1	0	0	1
Totals for Region	99	80	4	183

According to Ribes types the Ribes regeneration study plots are distributed as follows:-

State	Number of Ribes Plots Established in Ribes Type				Totals
	A	B	C	D	
Michigan (Upper)	40	0	10	0	50
Michigan (Lower)	19	0	9	2	30
Wisconsin	11	0	12	0	23
Minnesota	27	0	35	1	63
Ohio	0	0	16	0	16
Iowa	0	0	1	0	1
Totals for Region	97	0	83	3	183

A total area of 4,665 milacres or 4.67 acres is under observation with the North Central Region distributed as follows:-

State	Milacres per Ribes Type				Totals
	A	B	C	D	
Michigan (Upper)	600	0	200	0	800
Michigan (Lower)	380	0	450	40	870
Wisconsin	230	0	780	0	1,010
Minnesota	575	0	750	20	1,345
Ohio	0	0	520	0	520
Iowa	0	0	20	0	20
Total Milacre for Region	2,075	0	2,530	60	4,665

Thus 2,075 milacres or 44.5% of the total area included in Ribes regeneration study plots are in a Ribes Type-A swamp, 2,530 milacres or 54.2% of the area are in Ribes Type-C upland, and 60 milacres or 1.3% are in a Ribes Type-D upland.

Each figure the name of the state, plot number, property owner, county, township, range, section, "30" and 10 acre tract, the Davenport tract, area or political township in which the various study plots are located.

Ribes regeneration study plots have been established in the counties of Alger, Beltrami, Iron, Mackinac, Marquette, Ontonagon, Dickinson, Benzie, Benewah, Montcalm, and Schoolcraft in the Upper Peninsula of Michigan, a total of eleven counties. In the Lower Peninsula, Michigan, Ribes regeneration study plots are now located in Alpena, Allegan, Antrim, Charlevoix, Crawford, Gladwin, Grand Traverse, Ionia, Leelanau, Montcalm, Ogemaw, Oscoda, Otsego, Roscommon, Newaygo, Saginaw, St. Clair, and Washtenaw counties, a total of 19 counties. Thus a total of 60 Ribes regeneration study plots including an area of 1,800 acres is located in 29 counties of the state of Michigan.

In Wisconsin 23 Ribes regeneration study plots with an area of 1,000 acres have been established in the following 13 counties: Bayfield, Forest, Iron, Jackson, Langlade, Marathon, Shawano, Sawyer, Manitowish, Portage, Vilas, Wood, and Polk.

In Minnesota 57 Ribes regeneration study plots with an area of 1,400 acres have been established in the following 16 counties: Beltrami, Cass, Cook, Lake, Aitkin, Becker, Carlton, Chisago, Hubbard, Isanti, Marshall, Goodrich, Morrison, Pine, St. Louis, and Todd.

In Ohio, 16 Ribes regeneration study plots with an area of 220 acres have been established in four counties: Ashland, Belmont, Columbiana, and Monroe.

In Iowa one Ribes regeneration study plot with an area of 80 acres has been established in Winneshiek county.

A summary of the Ribes regeneration study plot data by Ribes types and species giving the original density of Ribes, the amount left after the initial Ribes eradication had been performed, and the progressive Ribes regeneration will be prepared for this Region. Since in a study of regeneration of Ribes it seems best to allow some time for regeneration to take place, it is believed best to await a detailed report on these study plots for future years. Therefore, a further detailed report on Ribes regeneration is omitted from the 1937 Annual Report.

PHENOLOGIC DATA 1937

In May, 1937 a memorandum issued from the Regional Office, Milwaukee, Wisconsin, suggested certain items regarding phenologic data pertinent to blister rust to be recorded by counties in the several states. The items suggested were dates of:-

- I. Aerial Productions
 1. First Appearance
 2. Spore Broken and Disseminating
 3. Last Appearance

II. Other Conditions

1. Moths beginning to appear
2. Leaves expanded
3. Leaves infested
 - (a) First appearance of arborescence
 - (b) Last appearance of arborescence
 - (c) First appearance of "tells"
4. Degree of leaf defoliation

III. Local Control

1. Beginning of season
2. Ending of season

IV. Weather Correlation (local rain, drought, temperature, winds, etc. for the different square production periods).

The State Leaders transmitted the above memoranda to the field and many notes have been received from various states.

Table VII is an attempt to compile this data into tabular form. It is hoped that next year more complete data of this nature may be obtained.

Local Production

Michigan

In Newaygo County aerial production was first observed on May 1, and by May 3 a few of the eggs were found broken and disseminating spores. Cessation of aerial production by the end of May was reported for Newaygo County but observations made later in Leelanau County revealed a small amount of aerial production as late as July 8.

In Huron County, Michigan, (Upper Peninsula) eggs were first observed May 2 and were found broken and disseminating spores by May 13. Thus, dates reported for the Upper Peninsula were several days later (about 5) than for the Lower Peninsula.

Wisconsin

In Wisconsin eggs were reported as early as May 3 and were found ruptured and disseminating ascospores from May 18 to 23 in Portage County. In Dunn County eggs were first observed May 9 at which time a certain percentage was already disseminating ascospores. Eggs were last observed in Dunn County June 20.

Minnesota

In Minnesota, the first aerial production was reported in Duluth, St. Louis County, on May 10. Dissemination of ascospores was reported by May 27 and the last evidence of aerial fruiting recorded June 18 at Duluth.

Aroids were found broken and withered during apogee in Cook County on June 22 and in Forest County May 27.

Ohio

Ohio did not report aroid presence on white pine in 1937.

Ribes Development

Michigan

Michigan reports aroid leaves were appearing by April 25 in an area located on the shore of Lake Michigan in Ogemaw County, west of inland buds were beginning to open but the leaves had not expanded.

Wisconsin

In Wisconsin Ribes buds were opening the latter part of April (Dunn, Portage Counties). In Shawano County leaves were reported expanded by May 11.

Minnesota

In St. Louis (Polk) and Cook Counties, Minnesota, buds were beginning to open April 23 and were well expanded by May 10.

Ohio

Buds of Ribes bushes were more advanced in Ohio where they were reported opening April 7 in Ross and Washington Counties.

Ribes Infestation

Michigan

The date of first appearance of aroidia on Ribes leaves was not reported for the Lower Peninsula, Michigan, but in Marquette County, Upper Peninsula, aroidia were first reported June 24. The first appearance of aroid in the Lower Peninsula, (Lapeer County) Michigan, was recorded as July 25 and for the Upper Peninsula (Marquette County) as July 13.

Wisconsin

In Wisconsin no record regarding the first appearance of aroidia has been received. However, it was probably some time after May 24 for on this date inspections of Ribes in Lincoln and Portage Counties revealed no aroidia. First appearance of aroid was reported in Dunn County on June 15.

Minnesota

First appearance of aroidia of leaves of Ribes was recorded in St. Louis and Forest Counties, Minnesota, on May 7. The last appearance of aroidia was reported as the latter part of August in the same two counties.

Telios were first reported from St. Louis (Duluth), Washington and Isanti Counties on July 15, and in Carlton County in the latter part of August.

Ohio

In Fairfield County, Ohio, uredinia were reported on Ribes alnus on July 7.

Further Correlation

Wisconsin and Ohio

No comments were received from Wisconsin or Ohio regarding weather and blister rust developments.

Minnesota

Broken and disseminating ascia were first observed in Duluth St. Louis County, Minnesota, after a period of heavy rainfall accompanied by warm weather during May. During May, weather conditions in Isanti County, Minnesota, were reported ideal (heavy rains) for the development and spread of blister rust, although it is also stated that cool weather for several weeks prior to May 20 appeared to have retarded ascospore production and infection on Ribes. In Cook County high temperatures and high relative humidity were reported associated with the breaking open of ascial sori.

Frequent showers during the month of June resulted in rainfall and relative humidity above normal with a temperature below normal.

In July, Minnesota reports that the production of ascia for 1937 was believed to be light and also that urediniosporic production was light on Ribes. However, secondary infections (summer stage) on Ribes appeared to have been more favored and there resulted a prolific production of telia. Rainfall during the hot summer appeared about average in amount but favorably spaced and winds were moderately light. During August, with the exception of the northern parts of Lake and Cook Counties bordering Lake Superior, northern Minnesota had rather sparse rainfall. In the Duluth District both uredinial and telial stages were found and in certain areas approximately 50% of the bushes was infected of which 20% of the leaves and 80% of the leaf surface were involved. Defoliation, in part induced by drought, was reported in the Walker District during August. The first evidence of Ribes defoliation in the Duluth District was observed on the Grand Portage Indian Reservation during the latter part of August. Killing frosts were late in 1937 and discoloration and defoliation from this cause were not observed in Northern Minnesota until about the middle of September. Ribes bushes growing near the larger lakes did not react to frost as much as those located elsewhere. There was an absence of rainfall and a period of mild weather during October and November and infected Ribes leaves were retained late this fall, the telial stage being collected from Ribes until the middle of November.

PINE INFECTION STUDY PLOT

T.____, R.____, Sec.____, "40"____ Date Mapped____

County____ Township____

Owner:____ Address:____

Strip____ Transect____ Square Chain No.____

	A	B	C	D	E	F	G	H	I	J	N.
COVER OVERSTORY:											I
											II
											III
											IV
											V
											VI
											VII
											VIII
											IX
											X

Ribes type:____ Mapped by____

Legend

White pine designated by tree number
 Ribes species designated by first or
first and second letters of
 species name.

Location to square milacre design-
 ated by coordinates:

Abscissa by capital letters

Ordinates by Roman numerals

Scale: 5 inches = 1 chain

(B.R.C. - Pine Inf. S.P. Map Sheet.
 6/5/36 Revised 8/16/37 and 12/3/37).

A24

Tree Summary

Number Infected____
 " Killed by B.R.____
 " Dead:Other Cause____
 " Without Cankers____

Total Examined____

Too High to Exam.____

Grand Total Trees____

Trees Missing____

Ribes Summary

Species

Number of Bushes:____

Total F.L.S.____

**FORM III:
WHITE PINE BLISTER BUST CANKER STUDY**

Time Study Plot _____ Location _____ State _____

T. _____ Sec _____ "40" _____ County _____

Tree No. _____ Strip _____ Transect _____

Investigations		Tree data (P. strobus L.)			Number of Cankers on:						
No.	Date	Inspector	D.B.H. (Inches)	Height (Feet)	Crown Class	Conditio	Years Needles Borne	Twigs	Branch	Trunk	Total Cankers
1											
2											
3											
4											
5											

Canker No.	Side of Tree Infected	Year's Growth First Inf.	Dist. to Base Inf. Branch	St. Center Trunk Canker	Suscept Organ Affected*	Years' Growth Involved	Canker Surface		** Canker Stems	Growth Beyond Canker Killed	Distance Edge Branch Canker to Trunk (Feet)	Canker Marked with	Number of Cankers Included	Total Cankers
							Dia- meter of	Width Length						
1														
2														
3														
4														
5														
1														
2														
3														
4														
5														
1														
2														
3														
4														
5														

* to base (0-3 inch at base), length, branch - trunk, trunk.
 ** Isolations, first pyocides, 2 pyocides each, first isol. 100, 500, 500, 500, 500.
 See Canker Study form (first series) 6/10/55

FORM IV.
WHITE PINE PLYSTER BUST CANKERS STUDY

Pine Study Plot _____

T. _____ R. _____ Sec. _____ "40" _____

Location _____ County _____ State _____

Tree No. _____

Transsect _____ Strip _____

Canker Data Items	Inspector's	Suscept Organ affected*	Years' Growth Involved	Canker Surface		Canker since placed	Growth Beyond Canker Killed	Distance From Canker To Trunk (Feet)	Canker Largest Vitr	Number of Cankers Included	Remarks
				Dis- Meter of Canker	Width length						
Canker No. _____ Side of Tree Infected _____ Year's Growth First Inf. _____ Ht. to Base Inf. Branch _____ Ht. Center Trunk Canker _____	1 2 3 4 5										
Canker No. _____ Side of Tree Infected _____ Year's Growth First Inf. _____ Ht. to Base Inf. Branch _____ Ht. Center Trunk Canker _____	1 2 3 4 5										
Canker No. _____ Side of Tree Infected _____ Year's Growth First Inf. _____ Ht. to Base Inf. Branch _____ Ht. Center Trunk Canker _____	1 2 3 4 5										
Canker No. _____ Side of Tree Infected _____ Year's Growth First Inf. _____ Ht. to Base Inf. Branch _____ Ht. Center Trunk Canker _____	1 2 3 4 5										
Canker No. _____ Side of Tree Infected _____ Year's Growth First Inf. _____ Ht. to Base Inf. Branch _____ Ht. Center Trunk Canker _____	1 2 3 4 5										
Canker No. _____ Side of Tree Infected _____ Year's Growth First Inf. _____ Ht. to Base Inf. Branch _____ Ht. Center Trunk Canker _____	1 2 3 4 5										

* on Tree (0.5 inch or less), Branch, Trunk, Ditch,
or adjacent, First Pione, Pyramidal Saw, First saws, 2nd, 3rd, etc. back
on Trunk Study Form (Continuation Sheet) 5/15/39

FORM **V**
ENTOMOLOGIC DATA

County _____ R. _____ T. _____ Sec. _____ "40" _____

Location _____ State _____

Observed by* _____ Date* _____

Local Production:

- | | Date** | Observed** |
|--|--------|------------|
| 1. First appearance _____ | | |
| 2. First Broken and Discoloration(%) _____ | | |
| 3. Last Appearance _____ | | |

Ribes Conditions: Species: Ribes _____

- | | | |
|---|--|--|
| 1. Buds Beginning to Open _____ | | |
| 2. Leaves Expanded _____ | | |
| 3. Larvae Infected*** _____ | | |
| (a) First appearance of Uredinia _____ | | |
| (b) Last appearance of Uredinia _____ | | |
| (c) First appearance of Tella _____ | | |
| 4. Degree of Leaf Defoliation (%) _____ | | |

Local Control:

- | | | |
|--------------------------------|--|--|
| 1. Date Beginning Season _____ | | |
| 2. Date ending Season _____ | | |

Weather Correlation: (Local: Rain, Drought, Temperature, or Winds, etc. For various
Spore Production Periods) _____

* To be used in case of one observation in area.
 ** To be used in case of a series of observations in area.
 *** If Ribes are infected use "Ribes Inspection" sheet.

Forest Inventory and Analysis Report
Forest Inventory
Table 2. - Tree Size Class Summary (Number of Trees, Volume, and Weight)

Lower Michigan											Michigan											Michigan																	
Height Class (ft)	Total Trees		% Specimen Trees					Culm			Height Class (ft)	% Specimen Trees					Culm			Height Class (ft)	% Specimen Trees					Culm			Height Class (ft)	% Specimen Trees					Culm				
	No.	Vol.	F	S	A	Without Culm	Other	Total	Vol.	Wt.		F	S	A	Without Culm	Other	Total	Vol.	Wt.		F	S	A	Without Culm	Other	Total	Vol.	Wt.		F	S	A	Without Culm	Other	Total				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
Seedlings	11	0.2	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	1-5	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	1-5	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	1-5	0.0	0.0	0.0	100.0	0.0	0.00	1-5	0.0	0.0	0.00
0.1 - 2.0	75	10.1	15.8	80.5	25.5	25.3	11.1	19	1.7	0.04	6-10	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	6-10	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	6-10	0.0	0.0	0.0	100.0	0.0	0.00	6-10	0.0	0.0	0.00
2.1 - 4.0	45	11.1	41.8	58.2	16.4	10.6	0.2	38	2.1	0.05	11-15	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	11-15	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	11-15	0.0	0.0	0.0	100.0	0.0	0.00	11-15	0.0	0.0	0.00
4.1 - 8.0	45	7.3	49.3	50.0	0.0	50.0	0.0	15	0.5	0.02	16-20	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	16-20	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	16-20	0.0	0.0	0.0	100.0	0.0	0.00	16-20	0.0	0.0	0.00
8.1 - 20.0	11	7.1	47.8	0.0	47.8	24.7	0.0	21	1.4	0.07	21-25	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	21-25	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	21-25	0.0	0.0	0.0	100.0	0.0	0.00	21-25	0.0	0.0	0.00
20.1 - 100.0	14	2.9	30.0	0.0	30.0	42.4	0.0	06	0.0	0.00	26-30	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	26-30	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	26-30	0.0	0.0	0.0	100.0	0.0	0.00	26-30	0.0	0.0	0.00
100.1 - 120.0	11	4.0	40.7	0.0	40.7	53.1	0.0	08	0.0	0.00	31-35	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	31-35	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	31-35	0.0	0.0	0.0	100.0	0.0	0.00	31-35	0.0	0.0	0.00
120.1 - 140.0	15	4.1	55.7	0.0	55.7	23.2	0.0	30	0.0	0.00	36-40	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	36-40	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	36-40	0.0	0.0	0.0	100.0	0.0	0.00	36-40	0.0	0.0	0.00
140.1 - 160.0	8	2.0	50.0	0.0	50.0	50.0	0.0	08	0.0	0.00	41-45	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	41-45	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	41-45	0.0	0.0	0.0	100.0	0.0	0.00	41-45	0.0	0.0	0.00
160.1 - 180.0	4	1.1	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	46-50	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	46-50	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	46-50	0.0	0.0	0.0	100.0	0.0	0.00	46-50	0.0	0.0	0.00
180.1 - 200.0	1	1.1	55.7	0.0	55.7	22.1	0.0	1	1.1	0.00	51-55	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	51-55	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	51-55	0.0	0.0	0.0	100.0	0.0	0.00	51-55	0.0	0.0	0.00
Over 20 feet	18	5.0	55.2	5.8	57.2	61.1	11.1	10	1.4	0.02	56-60	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	56-60	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	56-60	0.0	0.0	0.0	100.0	0.0	0.00	56-60	0.0	0.0	0.00
Undetermined	1	0.0	0.0	0.0	0.0	0.0	100.0	0	0.0	0.00	61-65	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	61-65	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	61-65	0.0	0.0	0.0	100.0	0.0	0.00	61-65	0.0	0.0	0.00
Totals	19	100.0	50.1	11.4	25.5	55.8	0.0	145	5.5	0.21	66-70	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	66-70	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	66-70	0.0	0.0	0.0	100.0	0.0	0.00	66-70	0.0	0.0	0.00
Grand Tot. Vol.																																							
Grand Tot. Wt.																																							
Grand Total																																							
Grand																																							

Table 2. - Tree Size Class Summary (Number of Trees, Volume, and Weight)

Upper Michigan																																					
Height Class (feet)	Total		% Specimen Trees					Culm			Height Class (feet)	Total		% Specimen Trees					Culm			Height Class (feet)	Total		% Specimen Trees					Culm							
	No.	Vol.	F	S	A	Without Culm	Other	Total	Vol.	Wt.		F	S	A	Without Culm	Other	Total	Vol.	Wt.		F		S	A	Without Culm	Other	Total	Vol.	Wt.		F	S	A	Without Culm	Other	Total	
Seedlings	11	0.2	0.0	0.0	0.0	100.0	0.0	0.0	0.00	0.00	1-5	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	1-5	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	1-5	0.0	0.0	0.0	100.0	0.0	0.00		
0.1 - 2.0	75	10.1	15.8	80.5	25.5	25.3	11.1	19	1.7	0.04	6-10	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	6-10	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	6-10	0.0	0.0	0.0	100.0	0.0	0.00		
2.1 - 4.0	45	11.1	41.8	58.2	16.4	10.6	0.2	38	2.1	0.05	11-15	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	11-15	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	11-15	0.0	0.0	0.0	100.0	0.0	0.00		
4.1 - 8.0	45	7.3	49.3	50.0	0.0	50.0	0.0	15	0.5	0.02	16-20	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	16-20	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	16-20	0.0	0.0	0.0	100.0	0.0	0.00		
8.1 - 20.0	11	7.1	47.8	0.0	47.8	24.7	0.0	21	1.4	0.07	21-25	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	21-25	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	21-25	0.0	0.0	0.0	100.0	0.0	0.00		
20.1 - 100.0	14	2.9	30.0	0.0	30.0	42.4	0.0	06	0.0	0.00	26-30	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	26-30	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	26-30	0.0	0.0	0.0	100.0	0.0	0.00		
100.1 - 120.0	11	4.0	40.7	0.0	40.7	53.1	0.0	08	0.0	0.00	31-35	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	31-35	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	31-35	0.0	0.0	0.0	100.0	0.0	0.00		
120.1 - 140.0	15	4.1	55.7	0.0	55.7	23.2	0.0	30	0.0	0.00	36-40	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	36-40	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	36-40	0.0	0.0	0.0	100.0	0.0	0.00		
140.1 - 160.0	8	2.0	50.0	0.0	50.0	50.0	0.0	08	0.0	0.00	41-45	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	41-45	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	41-45	0.0	0.0	0.0	100.0	0.0	0.00		
160.1 - 180.0	4	1.1	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	46-50	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	46-50	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	46-50	0.0	0.0	0.0	100.0	0.0	0.00		
180.1 - 200.0	1	1.1	55.7	0.0	55.7	22.1	0.0	1	1.1	0.00	51-55	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	51-55	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	51-55	0.0	0.0	0.0	100.0	0.0	0.00		
Over 20 feet	18	5.0	55.2	5.8	57.2	61.1	11.1	10	1.4	0.02	56-60	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	56-60	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	56-60	0.0	0.0	0.0	100.0	0.0	0.00		
Undetermined	1	0.0	0.0	0.0	0.0	0.0	100.0	0	0.0	0.00	61-65	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	61-65	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	61-65	0.0	0.0	0.0	100.0	0.0	0.00		
Total	19	100.0	50.1	11.4	25.5	25.3	11.1	19	1.7	0.04	1-5	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	6-10	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	11-15	0.0	0.0	0.0	100.0	0.0	0.00		
Trees Too Small To Sample																																					
Grand Total trees	19	100.0	50.1	11.4	25.5	25.3	11.1	19	1.7	0.04	1-5	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	6-10	0.0	0.0	0.0	100.0	0.0	0	0.0	0.00	11-15	0.0	0.0	0.0	100.0	0.0	0.00		

Handwritten notes in the left margin, possibly a date or page number.

1118
355

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Handwritten text in the lower section of the left page, appearing as a list or series of entries.

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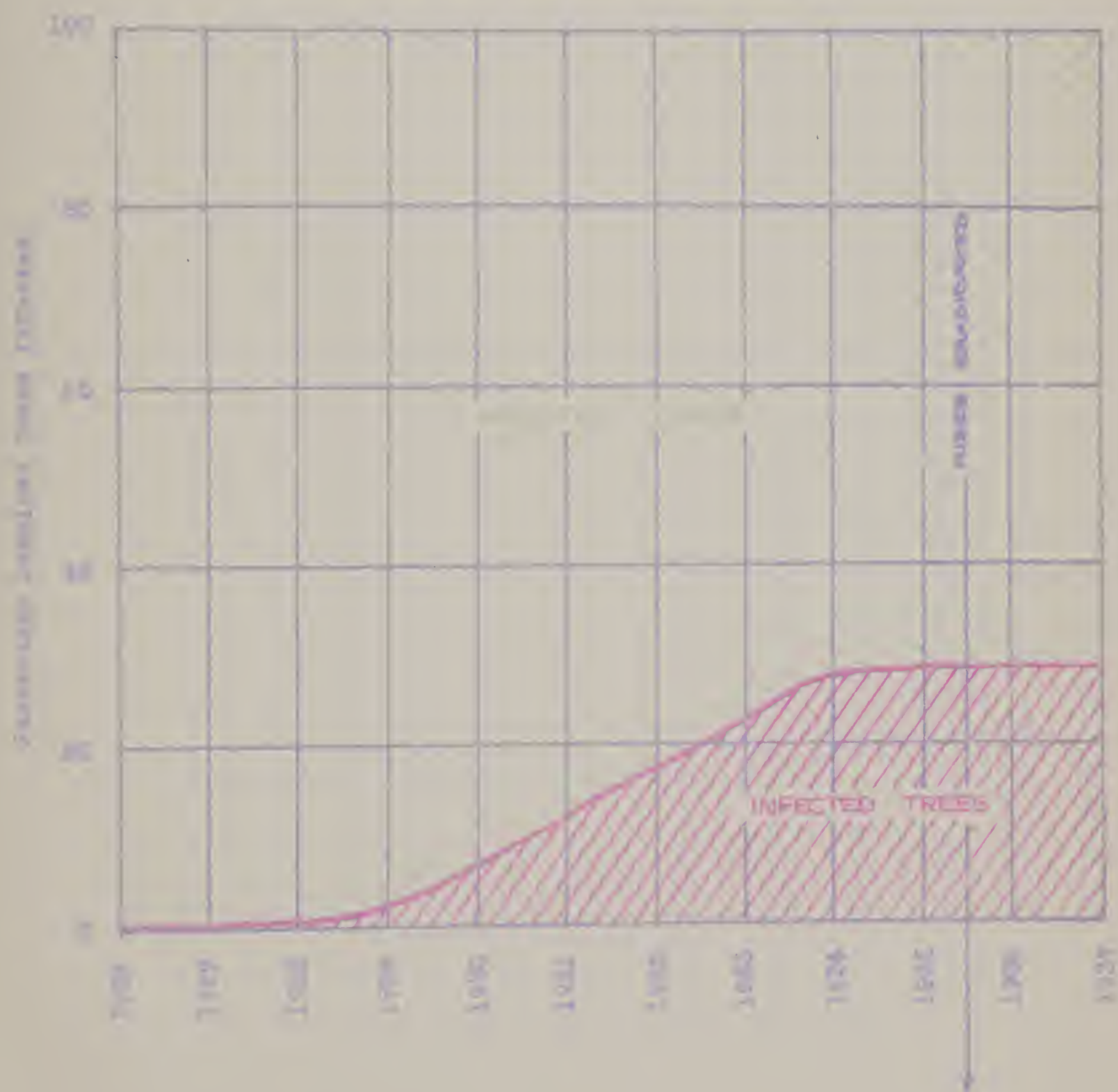
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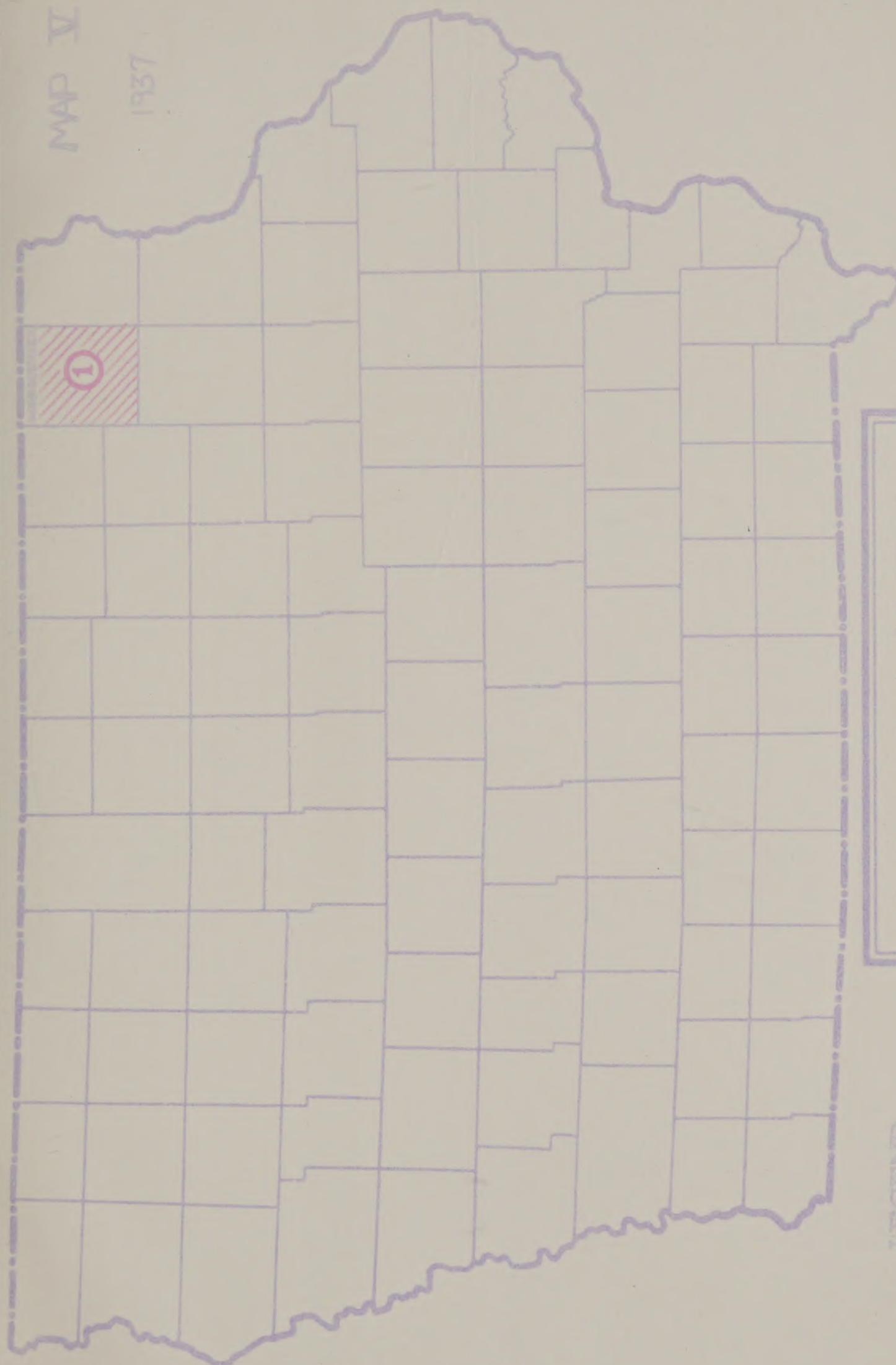
CHART 1. Percentage of Infected Trees
by Year from First Infected

Tree 17111
(Landing and Tamarite Creek Forest; sites
established in 1975 and 1980 respectively)



MAP IV

1937



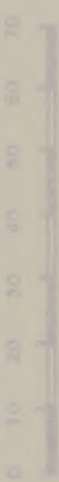
Outline Map of IOWA

SHOWING

BLISTER RUST CONTROL

STUDY PLOTS

SCALE OF MILES



LEGEND

NUMBER OF RUST RESEN-
SATION STUDY PLOTS IN
COUNTY



COUNTY CONTAINING STUDY
PLOT



moore

Lyden

